THE BEAR AS BAROMETER: THE JAPANESE RESPONSE TO HUMAN-BEAR CONFLICT

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Abstract

The Asiatic black bear, or ‘moon bear’, has inhabited Japan since pre-historic times, and is the largest animal to have roamed Honshū, Shikoku and Kyūshū since mega-fauna became extinct on the Japanese archipelago after the last glacial period. Despite this, the bear features only rarely in the folklore, literature and arts of Japan’s mainstream culture. This relative cultural invisibility in the lowland agrarian-based culture of Japan contrasts markedly with its cultural significance in many upland regions where subsistence lifestyles based on hunting, gathering and beliefs centred on the mountain deity (*yama no kami*) have persisted until recently. However, in recent decades the bear has been propelled from its position of relative cultural obscurity into the forefront of mainstream society’s attention. As more and more of the bear’s habitat is destroyed or degraded through forestry and development, the bear is increasingly encroaching onto human territory in its search for food, leading to pestilence and bear attacks.

This thesis examines the nature of the contemporary human-bear relationship in Japan, dominated by human-bear conflict, or the so-called ‘bear problem’. To better understand the contemporary response to the bear, the thesis explores the historical relationship of the Japanese with both the bear and its habitat, the forested uplands. The thesis further seeks to understand how cultural, historical, social and geographic factors influence a society’s response to wildlife conflict and what can be learnt from the Japanese example which can be applied to the understanding of human society’s response to wildlife conflict elsewhere.

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Author's notes

Historical periods: There is significant variation in the date ranges for Japan's historical periods (particularly those of pre-historic and early Japan). The periodization used in the present work is that set out in Pearson (ed.) (1992). A chart of historical periods is also provided in the Appendix.

Conventions for numbers: The convention for numbers used in the text is as follows: numbers from one to nineteen will be rendered in words, while numbers of twenty upwards will be rendered in numerals, except in tables, where all numbers will be rendered in numerals.

Use of macrons: Macrons (the symbol indicating a long vowel) will be used for the rendering of Japanese words in the *rōmaji* script, except for those which appear commonly in English, such as Tokyo, Osaka, Kyoto and Shinto.

Japanese names: Names of Japanese authors and other persons cited in the text follow the Japanese convention (family name first) except where the person is an author of a book in English, in which case the citation of their name will follow the English convention of personal name first.

Inclusion of kanji: Where the author feels that their inclusion will enhance the meaning of the text, *kanji* (Chinese characters) are included in the text, along with their reading (in *rōmaji* script), the first time a term is mentioned. In particular, they are included in cases where the English translation provided is approximate, and cannot capture the full meaning of the Japanese. However, there are cases where *kanji* are not included: for instance, where the term is not normally rendered in *kanji*, or where the author has only cited the term or phrase in its *rōmaji* or *kana* form.

Personal communications: For personal communications, all relevant information will be contained in the endnote. No information will be provided in the References Cited. Where the personal communication involves a Japanese person, the full name of the individual, in both *kanji* and *rōmaji* script, will be provided where the source is first cited.

Translated passages: In translated passages, square brackets [ ] will contain information not in the original text, but which the author feels brings clarity to the translation.

Notes on terminology:

1. The term 'the bear' or 'bear' will be used in this thesis to refer to the Asiatic black bear of Japan (*Ursus thibetanus (japonicus)*) (and in some limited instances where it refers to bears generically), except in instances where the author feels that the full name needs to be used to

avoid confusion. Where the Hokkaidō brown bear (*Ursus arctos yesoensis*) is referred to, it will be by using its common name ‘brown bear’.

2. The government body currently responsible for environmental issues and their management in Japan is the Ministry of the Environment. This ministry came into being in 2001, restructured from its predecessor, the Environment Agency. Where information has been sourced from documents produced by the previous body, reference is made to the Environment Agency. Where data or information has been sourced from documents or produced by, or relating to the current body, reference is made to the Ministry of the Environment.

Chapter One: Introduction

1.1 The aims and rationale of the thesis

1.1.1 Background to the thesis

In the summer and autumn months of 2006, 4,500 Asiatic black bears were culled in Japan—an unprecedented number since records have been kept.[1] Given that the estimated national population of the bear is between 10,000 and 15,000, this is a significant proportion (between 30 and 45 per cent) of the overall population. This revelation sent shock-waves through Japan's bear research and management fraternity, who grappled for answers.

How could the situation in Japan have reached this point? Are the Japanese simply not concerned about wildlife or the natural environment? Or are there factors at play which relate specifically to the bear—is the fear of the bear so overwhelming that safety takes precedence over all other considerations? Is the bear generally despised, and is this unprecedented culling rate the ultimate reflection of a society's negative attitude toward this creature?

In fact, as is usually the case with any issue involving human factors, the reasons are not as clear-cut as any of the questions posed above would suggest—instead the developments leading up to this situation are a complex web of environmental, historical, economic, political, social and cultural factors.

Human-wildlife conflict is a phenomenon that is occurring worldwide, and therefore has implications for the continued survival of many wildlife species globally.[2] Predators and large mammals now only survive in a fraction of their original habitat, and there are very few instances of the populations of developed, industrialised nations coexisting in close proximity with such species. However, as economic development continues internationally, it will become essential for human society to find ways to coexist with these species if they are not to become extinct or remain only in small pockets in wildlife reserves.

The Japanese are now facing a transition in their interaction with the Asiatic black bear. For many centuries, the Japanese coexisted with the bear, for a large part, unknowingly, because the spheres of human and bear habitation were entirely separate: humans lived largely on the lowland plains, while bears inhabited the upland forest. However, this state of coexistence was set to change as the post-war decades of human development and encroachment into the forested mountains have taken their toll: as the bear's natural habitat and food sources have become more and more depleted, the bear is increasingly venturing into human space in search of food. This has led to an unprecedented incidence

of human-bear conflict: a phenomenon referred to as *kuma mondai* クマ問題, or the 'bear problem', in Japan.[3]

Human-bear conflict is not only a manifestation of a growing imbalance between humans and nature, but of social imbalances also. Remote rural areas in Japan are becoming increasingly isolated both socially and economically, as depopulation and out-migration take their toll.[4] Left with predominantly elderly small-holders on farms, rural villages in upland Japan often lack the funds or capacity to prevent, or protect themselves against, bear pestilence. Thus, in addition to their social, economic and physical isolation, these elderly villagers are now being faced with the heightened potential for bear pestilence and even attacks. Some are giving up farming as a result. The term 'bear as social barometer'—an extension of the ecological concept of wildlife as a barometer of ecological health—is used in the present thesis to describe this idea of human-bear conflict being a reflection of social issues or imbalances. The interpretation of wildlife encroachment and conflict as symbolic of the neglect of 'traditional' rural life by society is not uncommon throughout the world; wildlife conflict is often seen as a manifestation of social and economic injustice, as will be seen in the discussion of the human dimensions of wildlife conflict.

1.1.2 Why the bear?

The bear is not the only source of human-wildlife conflict in Japan. In fact, compared to other wildlife, the damage it causes is minimal, at least when viewed in monetary terms. In most years, wild boar, deer and crows cause agricultural damage approximately ten times the magnitude, in terms of cost, of that caused by bears, and the agricultural damage caused by monkeys and even sparrows is consistently double that of bears, as will be seen.[5] However, an analysis based only on the financial cost of damage does not take into account the psychological trauma, to both individuals and communities, caused by bear pestilence and bear-caused injuries. This multidimensional nature of human-bear conflict makes it an insightful object of study.

The study of the human-bear relationship also provides a window into the way society perceives both the bear and the nature which it inhabits. A wild animal should not be seen in isolation from its habitat, whether it be from an ecological perspective, from the point of view of human-animal relations, or in terms of the symbolism that habitat holds for people. The relationship and perceptions people have with, and of, a particular realm of wildlife habitat, whether it be mountains, forests, desert or wetland, is likely to influence the way people perceive the animals which inhabit it.

The Japanese perception of nature is a theme of much scholarly discussion, for example, see Anesaki, 1933; Suzuki, 1970; Saitō, 1983; Senda, 1992; Shaner, 1989; Kalland, 1995; Kalland & Asquith, 1997; Murota, 1985; Watanabe, 1974. However, the Japanese relationship with 'wild nature' (as

opposed to the familiar, cultivated or semi-cultivated nature which is more prominent in Japan's cultural history), and the creatures which inhabit it, has been less fully explored.[6] Indeed, the bear and its upland mountainous habitat has been conspicuously absent in discussions of 'Japanese nature'. Scholars of the Japanese relationship with nature have encouraged a perception that 'Japanese nature' is graceful and delicate. Anesaki Masaharu, for example, writes: 'Maples redden in autumn, as American maples do, but the leaves are extremely delicate…The native animals of Japan, too, are prevailingly gentle; the wolf is the only beast of prey found on the islands.' Even the Japanese wolf, he notes, was 'much less ferocious than the European wolf'.[7] As can be seen, Anesaki appears to have overlooked the bear, which, being large, potentially dangerous, and arguably neither graceful nor delicate, does not fit well within the stereotypical image of 'Japanese nature'. Given this background, the study of the Japanese perception of the bear and the nature which it inhabits provides an insight into the Japanese relationship with the 'wild' nature which exists beyond the idealised nature of woodblock prints, *kachōga* (flower and bird paintings) and haiku.

Furthermore, the human response to human-bear conflict provides insight into the traditional tendency to divide geographical space in and around rural upland villages into two main spheres: *satoyama* 里山 and *okuyama* 奥山,[8] a dimension of the Japanese geomentality examined by authors such as Kitamura (1995), Chiba (1995), and Sasaki (2006). The bear inhabits a geographical and cultural realm known to the Japanese as *okuyama*—the remote forested mountainsides. To the Japanese, the *okuyama* was traditionally regarded as a mysterious and frightening place, inhabited by spirits, gods and monsters, and associated with death and the 'other world' (*ikai* 異界).[9] Within this traditional Japanese conceptualisation of the landscape, humans and domesticated animals belong in the realm of *sato* (village), and wild creatures belong in the realm of *okuyama*. The *satoyama* (human-managed nature surrounding the *sato*) has traditionally acted as a natural buffer between these two realms. However, the bear is increasingly moving from its natural habitat of *okuyama* to the sphere of *sato*, or human-inhabited areas, in search of food—a phenomenon which anthropologists refer to as 'boundary crossing' (see, for example, Mullin, 1999; Knight, 2000a). This not only leads to pestilence and human injuries, but also causes psychological discomfort to those in the rural areas affected, who feel that it is a sign of something more ominous and far-ranging—a sign of a fundamental disturbance in the balance of nature. This manifests itself in what commentators refer to as *seishinteki higai* 精神的被害 or psychological trauma (literally, spiritual trauma).[10] Thus, this phenomenon is not simply a wildlife conservation or management issue, it is also a phenomenon which impacts on the Japanese sense of what is 'natural', and therefore has a significant socio-psychological and cultural dimension.

The bear is an enlightening object of study not only from this contemporary perspective, but also from the perspective of Japan's cultural history. Through an examination of perceptions of the bear in Japan's cultural history, a clear lowland/upland distinction becomes apparent: for lowland dwellers it

was a mysterious and elusive creature symbolic of the remote mountain forest (*okuyama*), while for upland communities, it was a revered creature, important to both their material and spiritual lives.

The significance of this 'lowland' and 'upland' distinction requires explanation. The Japanese landscape can be divided into two general categories: lowland areas comprised of coastal plains and river basins, where agriculture has predominated for much of Japan's history, and interior upland and highland regions, characterised by forested mountains.[11] It is on the lowland plains that Japan's economy, based primarily on rice agriculture, has been centred for most of its history, and where Japan's main cities have developed. The uplands, and particularly those in the northeast of Japan, were for centuries relatively isolated culturally, socially, politically and economically from the centre of the Japanese economy and government, which has been based primarily around the Kantō and Kansai regions.[12] In the uplands, and particularly in the north, where climatic and topographical features made rice agriculture less feasible, subsistence lifestyles based on hunting, fresh-water fishing, wild food gathering and slash and burn agriculture have persisted until recent times. Owing to the political and social isolation of these regions, and the clearly differentiated lifestyle necessitated by the geographical and climatic features of the uplands, the people of these upland regions developed regional cultures quite distinct from the dominant lowland culture. This is not simply an aspect of historical interest, it has bearing on the way in which the bear is perceived in Japan today: this study will show how differences in the way upland and lowland perceptions and interactions with the bear are still apparent.

1.1.3 The questions

With the above background in mind, this thesis explores and seeks to answer the following questions:

1. What is the nature of the contemporary human-bear relationship in Japan?
2. What is the historical relationship of the Japanese with the bear and its habitat, the forested uplands?
3. How do questions 1 and 2 inter-relate? In other words, how, if at all, does the historical perception of the bear inform the contemporary response to the bear and the 'bear problem'?
4. How, if at all, do regional differences in cultural heritage influence the contemporary response to the bear?
5. What can be learnt about Japanese society through this examination of the human response to human-bear conflict?
6. How do cultural, historical, social and geographic factors influence a society's response to wildlife conflict? What can be learnt from the Japanese example which can be applied to the understanding of a society's response to wildlife conflict elsewhere?

Question One will explore the nature of the contemporary Japanese relationship with the bear, focusing in particular on the dominant aspect of human-bear conflict, and will also examine how human-bear conflict in Japan compares and contrasts with that evident in other countries. Question Two will explore the place of the bear in Japan's cultural history, focusing especially on the distinction between how it was perceived in upland culture and lowland culture respectively. Question Three will explore how historical perceptions of the bear and its habitat (the forested uplands) inform the response to human-bear conflict in Japan today. Question Four will explore the possibility that there are 'regional' approaches to bear management, informed by a region's particular cultural heritage (e.g., the upland hunting culture of Tōhoku). In Question Five, the thesis will seek, through an exploration of the human-bear relationship, a better understanding of how the Japanese interact with and perceive the natural world around them. It also sets out to explore the dimension of 'bear as barometer': the 'bear problem' as a manifestation of salient social issues in Japan today, such as rural depopulation and the perceived alienation of rural society. Question Six reflects the fact that this study also has more global implications. An understanding of how cultural, historical, geographical, regional, political, social and economical factors shape a society's response to human-wildlife conflict aims to highlight the importance of an understanding of these factors when approaching a human-wildlife conflict issue in a specific culture.

1.2 Methodology

While there is a small body of existing literature on human-bear relations in Japan, this literature tends to focus either on an anthropological understanding of the relationship (e.g. Knight, 2000b; Knight 2003), or folklore relating to the bear, mainly based on anecdotal information (e.g., Gifu-ken Honyūrui Dōbutsu Chōsa Kenkyūkai, 1994; Azumane, 1994). (See Chapter Three for a more in depth discussion of the existing literature.) No current literature comprehensively examines the Japanese relationship with the bear in all its dimensions—cultural, social, historical, economic and political—necessary to fully understand the Japanese interaction with the bear, the response to the 'bear problem', and the factors informing this interaction and response.

Therefore, the approach taken in this research is strongly interdisciplinary, encompassing dimensions of archaeology, anthropology, history, sociology and wildlife management. This is necessary in order to understand all the facets of the human-bear relationship in Japan, in terms of the historical and pre-historical background, including folklore relating to the bear and its habitat; social values and perceptions influencing human interactions with the bear; and economic and political factors influencing its management. These factors inform both the causes of, and the response of society to, human-bear conflict.

The methods employed in order to achieve the aims of this research were as follows. Fieldwork was conducted both to inform the examination of the national situation and the regional case-study. For this purpose, two trips were made to Japan: one in May–June 2005 and a second in October 2006. These trips were both self-funded and owing to financial constraints and the inability to take extended leave (the author worked full-time in a professional position), they were both less than two weeks in length. The first trip involved fieldwork and interviews in Iwate Prefecture and Akita Prefecture (both in northern Honshū) and interviews with key individuals in the Tokyo region and in Yamagata Prefecture (northern Honshū). The second field trip involved fieldwork in Iwate Prefecture and Gifu Prefecture. The case study focused on Iwate Prefecture, where the majority of time was spent. Within Iwate, fieldwork was centred on the countryside around Morioka City and the Tōno City area. These places were chosen for two reasons. The first was entirely practical in nature: the present author's contacts were centred in Morioka City and were able to introduce their respective contacts in Tōno City and elsewhere to the author. The second was that these two areas would provide a good cross-section of information owing to their contrasting demography and geography: the Morioka City surrounds are close to the Ōu Ranges and are in proximity to a large city, while the Tōno area is close to the lower altitude Kitakami Highlands and encompasses a small, historically agrarian town. Gifu Prefecture, a land-locked and fairly mountainous prefecture in central Honshū, was chosen as an additional fieldwork site in order to gain an understanding of damage to silviculture, which, while being the major form of bear pestilence nationally, is not common in Iwate Prefecture.

Given the time and resource constraints under which fieldwork needed to be completed, as noted above, the author focused on interviewing key individuals who had a high level of experience dealing with victims of pestilence, such as town officials or hunters involved in bear management. Through these interviews, the author was able to gain insights into responses, perceptions, and general patterns among those who experience pestilence in a more expeditious manner than attempting to interview the victims of pestilence individually (opportunities which would have in any case been limited owing to the short length of field-trips to Japan).[13] Information gained in this way was supplemented by the analysis of newspaper coverage (outlined below).[14]

The issue of positionality also needs to be addressed. As a foreigner interviewing Japanese informants, there is potential for cultural and language issues to impede the communication of views and ideas, or the interviewer's interpretation of them. However, as the author is able to communicate with relative ease in the Japanese language and is very familiar and comfortable with social protocols in Japan, and because the majority of informants were officials who spoke reasonably standard Japanese rather than regional dialects, the author did not perceive any significant impediment inherent in her fieldwork activities owing to her being a foreign researcher.

In Iwate, key people involved in research and academic work concerning bear management, biology and ecology were interviewed: key members of the Japan Bear Network, an umbrella organisation which provides a forum (through an email distribution list, workshops and symposiums) to share information and increase awareness concerning bears in Japan; Tōno city officials responsible for wildlife management; a Tōno hunter; a naturalist, and Tōno Municipal Museum curators. In addition, information and data relating to Iwate Prefecture's bear management system was gathered. Various locations were visited, including farms and orchards affected by bear pestilence; academic and research institutions involved in bear and bear management research (Iwate University, Forestry and Forest Products Research Institute); bear denning and feeding sites; the Tōno City Office and the home of a hunter in Tōno. In Akita Prefecture, a visit was made to a traditional hunting village (Ani Town); the home of a family of traditional (*matagi*) hunters; the Ani Bear Park; and the Ani *Matagi* Museum. Staff at the bear park were interviewed, as was the local town official who deals with bear management. In Yamagata, an ethnologist specialising in Japan's hunting history, and particularly *matagi* hunting, was interviewed. In Kanagawa, one of Japan's leading wildlife management experts was interviewed.

In Gifu Prefecture, the following individuals were interviewed: a leading academic in bear biology and management at Gifu University and secretary of the Japan Bear Network; a hunter in Neo Village (located in central Gifu, where forestry damage caused by bears is a major issue); a Neo Village official; and the president of a forestry company in Neo Village. Sites visited included bear habitat in the mountains surrounding Neo Village and sites of silvicultural damage.

Preceding and following the two visits to Japan, the author also communicated in writing with key contacts in order to obtain information regarding the situation in Iwate and nationally, or to have points clarified.

Secondary sources consulted include statistics (obtained primarily from the Japan Statistical Bureau, government department websites, prefectural and city office websites); government documents and reports; newspaper reportage (discussed in more detail below); TV broadcasts; and academic literature, both in Japanese and English, in fields of wildlife management, human-animal relations, anthropology, ethnology, archaeology, history, folklore studies, biology, geography, literature etc.

In addition, where appropriate, this thesis makes reference to international literature in order to provide a comparative dimension to the Japanese study. This is important in order to discern how the Japanese situation differs from that of other countries, and how it parallels patterns evident internationally. The thesis makes reference primarily to literature relating to human-bear conflict and bear management in North America, owing to the relative wealth of research and literature concerning

the bear from this geographic region and the comparative paucity of literature (in English) relating to human-bear conflict and bear conservation and management in other regions. Comparative literature relating to the American black bear is specifically employed owing to this species' numerous similarities with the Asiatic black bear: of the eight species of bears, the American black bear most closely resembles the Asiatic black bear in such aspects as physiology, diet, ecology, behaviour and habitat.

As noted, newspaper reportage concerning bears was collected and analysed. This was conducted on both a national basis and on a regional basis, as part of the case study. The national survey of newspaper articles was performed by using the online database for the major national daily newspaper, *Mainichi Shinbun*. This was conducted over the year 2004, a year of unprecedented bear incidents nationally (at that time—it was later superseded by 2006). All articles containing a reference to the Asiatic black bear were selected, translated and categorised according to their content in order to discern whether there was any clear development in content over the course of the year. In total, 290 articles were surveyed. A clear limitation of this survey was this it covered only one year. The present author intended to continue the survey for the following year (2005), but this was no longer feasible when the newspaper changed to a new database system in early 2005, whereby the key-word search function was no longer available, and old articles were no longer accessible on the site. To some extent, this deficiency in the national survey has been compensated for in the regional survey, which involved the analysis of articles published in the regional paper, *Iwate Nippō*, over a period of nine years. Using the same methodology as the national survey, articles were collected, translated, analysed, and categorised (128 articles in total).

1.2.1 Rationale for case study

As noted, much of the fieldwork contributed towards the case study focusing on Iwate Prefecture, which comprises Chapter Ten of this thesis. While the foregoing chapters examine the relevant aspects of the human-bear relationship at the national level, there is a growing body of literature demonstrating that Japan is not as culturally monolithic as it was once presented (for example see Schnell, 2005; Martinez, 2005; Amino, 1996 for an examination of this aspect). Whereas the Yamato culture[15] of the lowland plains and cities has been presented as representing 'Japanese culture', there is a remarkable level of diversity depending on regional, historical, cultural and ethnic influences and geographical characteristics. This diversity is also reflected in the nature of the 'bear problem', which differs substantially from region to region in Japan, owing to a number of factors, including the level of urbanisation; the relative importance of agriculture, horticulture and forestry; demographical factors; geographical factors; and historical influences. Therefore, a focus on a specific region was considered important in order to obtain an accurate picture of human-bear conflict and the human response to it in one region, rather than a confused or contradictory attempt to provide an overview of

'the (national) Japanese response' to human-bear conflict. A vertical case study has been chosen in order to obtain a comprehensive view of the 'bear problem' in its entirety, from the causes of bear conflict and pestilence, through to the human response (both the immediate response and the longer-term 'administrative' response), and the nature of the discourse on the problem in the media, as reflected in public opinion, and among administrators and wildlife specialists. Iwate was selected as the focus of primary research for a number of reasons: it is one of the six prefectures of the mountainous and colder Tōhoku region (northern Honshū), where bear populations are less fragmented and isolated, and therefore more viable, than in other regions (see Figure 9 for a map of bear distribution); it is a region where a comparatively large amount of research, scholarship and interest has been directed towards the bear; and historically, it is a region where there is evidence of significant historical (and pre-historical) interaction with the bear, particularly in upland hunting villages.

1.3 Structure of the thesis

The thesis is divided into four parts; Part One comprises a review of literature relating to the human-bear relationship in the global context. Part Two comprises a discussion of the bear, the human-bear relationship and wildlife management in the contemporary context in Japan. Part Three will involve an examination of the relationship in Japan's cultural history. Part Four will focus on the regional case study of the human-bear relationship, while Part Five will comprise the final discussion and conclusions.

Within this structure, Chapter Two will discuss literature relating to the two key aspects of human-wildlife relations: the human dimension of wildlife management and the ethical aspect of human-animal relations. Chapter Three will examine the literature concerning the cultural significance of the bear world-wide, followed by an examination of the literature concerning the bear and its cultural significance in Japan. Chapter Four will examine the background to wildlife conflict in Japan, while Chapter Five will focus on the Asiatic black bear in Japan: its biology, ecology, distribution, and management, followed by an examination of human-bear conflict and the bear in captivity. Chapter Six will outline the legislative and administrative system of wildlife management in Japan, particularly as it relates to the bear. Chapter Seven will examine public discourse and perceptions of the bear in Japan. Chapters Eight and Nine will examine the bear's place in Japan's cultural history, both in upland and lowland culture respectively. Chapter Ten consists of the case study, as outlined in 1.2.1. Chapter Eleven will provide conclusions to the thesis questions outlined in 1.1.3. Maps, a table of historical periods and a glossary of key terms are located in the appendix.

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[1] *Yomiuri Shinbun*, December 19, 2006.

[2] Whereas the term 'conflict' implies a condition of reciprocity, the term is generally used to refer to costs borne by humans through human-wildlife encounters, albeit with the underlying recognition that much conflict has come about as a consequence of habit destruction caused by human actions. In the present thesis therefore, the term will be used to

refer to any human-wildlife interaction, either direct (i.e., involving a physical encounter), or indirect (involving a person's property, crops, or livestock etc) which results in a cost to the human party. While this may appear an unbalanced definition given that there are likely to be countless interactions between humans and wildlife which lead to costs solely to the wildlife, these type of conflicts will not be encompassed in the definition used in the present work. Instead, human-caused impacts on wildlife will be explored under the banner of concepts such as habitat-destruction. Human-wildlife conflict usually takes the form of pestilence (damage to agricultural, horticultural crops, forestry or livestock), or incidents leading to injuries to humans.

[3] The term 'bear problem' used here and in subsequent discussion is a direct translation of the Japanese term. This term is most frequently used to describe human-bear conflict situations in the media and in general discourse in Japan—whether they be situations involving pestilence, sightings or bear-encounters causing injuries. More neutral terminology, such as 'human-bear conflict', the term most commonly used in public documents and academic and scientific literature on bear management in North America, is not commonly used. The term *kuma mondai* is symbolic in that it demonstrates a stronger consciousness of the idea that the human-bear conflict is predominantly caused by the bear itself, despite increasing knowledge and awareness that its causes are almost entirely human.

[4] Though paradoxically, geographically, they have become more accessible than ever before, concomitant with increased road infrastructure and motor-vehicle use.

[5] Ministry of Agriculture and Fisheries, 2003.

[6] In the West, the word 'wilderness' connotes any wild and uninhabited place untouched by human cultivation and modification, including plains and deserts. In fact, in the biblical context 'The Wilderness' refers to the 'barren regions to the south and east of Palestine, especially those in which the Israelites wandered before entering the Promised Land and in which Christ fasted for 40 days and nights' (i.e., the desert) (Collins English Dictionary, 1998: 1743). In contrast, owing to Japan's geography of predominantly mountainous terrain, there are no vast uninhabited plains or deserts—it is the forested uplands (or *yama* 山) which constitute the geographic realm which most closely approximates what in the West would be referred to as 'wilderness', though, as with many countries, little of this space remains unmodified by humans activities today. Like the realm of 'wilderness' in the West, the *yama* were traditionally a place of mystery and innate power which inspire awe, fear, and reverence, and when not accorded appropriate respect, can easily overwhelm human beings.

[7] Anesaki, 1933: 8–9.

[8] *Okuyama* literally means 'back mountains'. *Yama* (see glossary) is also used to refer to the realm of the forested uplands generally, but the term *okuyama* connotes the particularly 'wild' and 'remote' part of the *yama*.

[9] Kitamura, 1995: 116. Chiba (1995) refers to this perception as *sanchūikai* 山中異界, and traces the development of this perception among *heichi jūmin* 平地住民, or 'plain dwellers' from Jōmon times to the present, in his essay on the mountains as the 'other world'. Sasaki (2006: 12–25) discusses the different functions of *sanchūikai* and traces the development of thought on the subject since Yanagita's pioneering work on the topic.

[10] Maita, 1998: 27.

[11] This is not simply a distinction made for theoretical convenience: in the Nara Period (710–794), according to the *Ritsuryō* law code, land was divided into two categories: cultivated land (on the plains) and all other land (including mountains, thickets and swamps) (Yoshimura, 1996: 63, as cited in Carlqvist, 2005: 50). The first category was of far greater value to the government, as it was from this that taxes were, in large part, derived.

[12] See Schnell, 2005 and Martinez, 2005, Amino, 1996 for discussions of the culturally constructed primacy of the 'mainstream' rice-based culture of the lowlands and the concomitant 'de-valuing' of 'non-mainstream' cultures such as upland culture.

[13] On a number of occasions when visiting farms or other sites of pestilence, the author hoped to interview the farmer or other persons involved. However, in cases where they were not available, it was problematic to organise follow-up opportunities owing not only to the time constraints, but also to the fact that the author relied on the good-will of Japanese contacts to provide transport, guidance and introductions to all fieldwork sites and contacts, and therefore felt that it was not appropriate to insist on a return visit in such circumstances.

[14] A survey would have also been a useful research method to ascertain perceptions and knowledge of the bear and the 'bear problem'. However, owing to the time and resources required to develop, pilot-test and translate a questionnaire, to establish the required contacts to provide introductions and distribution networks, and to distribute and collect questionnaires, and given that only brief trips could be made to Japan, the author felt that it would not be realistic to attempt such a survey.

[15] The term 'Yamato' is here used to refer to the culture and people associated with the Yamato State, which became established in the sixth century in what is now Nara Prefecture, and gradually increased its power and influence until it incorporated most of Japan. The culture of the Yamato state was strongly influenced by continental culture introduced by Korean scribes and other skilled immigrants who played an important role in the Yamato administrative system. The term 'Yamato' is often used in contradistinction to the indigenous Jōmon culture of Japan. (See also Glossary.)

Chapter Two: Human-animal relations—a global perspective

2.1 Introduction

This thesis is a study of the Japanese relationship with the Asiatic black bear both historically and in the contemporary context. Today, this relationship is dominated by the growing problem of human-bear conflict, and Japan is now grappling with the dilemma, faced by many societies around the world, of how to balance human needs against the survival needs of wildlife. The field of human-animal relations has for some decades been a point of interest for anthropologists, but in recent decades, it has become a field emphasised by scholars and practitioners of wildlife management also. The literature in this field, known as the 'human-dimension' of wildlife management, will be summarised in Section 2.2, in addition to literature concerning the human-wildlife conflict issue internationally. This literature will provide a global context for human-bear conflict and human-wildlife conflict generally, and provide a theoretical framework for understanding the phenomenon in the Japanese context.

A further aspect of the contemporary Japanese relationship with the bear is the dimension of animal welfare and ethics relating to the treatment of bears, particularly those kept in captivity. This dimension is especially pertinent in the Japanese case owing to the continued and widespread practice of keeping bears in captivity for entertainment purposes, a practice which has become common since the first 'bear park' opened in the late 1950s. These bear parks have attracted much adverse attention from Western animal welfare organisations, yet receive little attention from the public or organisations within Japan. In order to examine this emotive aspect of the human-bear relationship in Japan objectively, it is important to have an understanding of ethical frameworks governing human-animal relationships. Therefore, in section 2.3, the ethical aspects of the human relationship with animals, both in Japan and the West, will be examined, and the implications for bears, and wildlife management and conservation generally, in Japan will be explored.

2.2 Human-wildlife conflict and the human dimension of wildlife management

As stated, a major dimension of the contemporary Japanese relationship with the black bear is human-bear conflict, and the attempts of Japanese society to resolve it. The recognition of the centrality of the human-bear conflict issue to the management of bears worldwide is reflected in the growing body of literature concerning human-bear conflict in bear conservation and management. See for example, Breitenmoser (1998), Fredriksson (2005), Gore, Knuth, Curtis, and Shanahan (2006a and 2006b), Gunther et al (2004), Peine (2001) and MacHutchon (2000), Goldstein (2002) and Chauhan (2003) for papers relating to human-bear conflict in North America, Indonesia, the Indian Himalayas, Bolivia and Venezuela.[1] While the precise nature of human-bear conflict and the human response to it differs

according to species of bear, geographic region and cultural and social factors, one aspect appears to be common to all regions where human-bear conflict is reported: human-bear conflict, like other forms of human-wildlife conflict, has become an increasingly more serious and frequent problem in recent decades. In fact, Naughton-Treves and Treves (2005) report that leading conservationists now identify human-wildlife conflict as the primary threat to conservation in Africa.[2]

Pivotal to how a society chooses to manage a species and conflict with that species is termed the 'human dimensions' of wildlife management: the identification of 'what people think and do regarding wildlife management, and understanding why'.[3] An interest in the 'human dimensions' of wildlife management has grown since the late 1960s, particularly in the field of natural resource and wildlife management.[4] Decker and Chase (1997) suggest that the growing interest in human dimensions stems from a general consensus among wildlife management practitioners that these human-oriented aspects are the most difficult to understand and manage.[5] Morris (1998) sees it in the context of 'an emerging ecological crisis', in which anthropologists, philosophers and historians have become increasingly concerned with exploring the relationship between humans and the natural world.[6]

The human dimension is especially pivotal to the management of carnivores/predators, which have a greater potential to cause harm to human beings, and therefore tend to elicit a strong emotional response from the communities affected. A substantial body of literature has emerged specifically dealing with the human dimension of carnivore management and conservation, including for example, Treves and Karanth (2003), Naughton-Treves, Grossberg and Treves (2003), Manfredo, Zinn, Sikorowski and Jones (1998), Mech (1996), and Marker, Mills and MacDonald (2003). So important is the human dimension in the conservation and management of carnivores/predators, it has led Kellert, Black, Read Rush and Bath (1996) to state that the success of efforts to conserve predator species such as grizzly bears, wolves and mountain lions in North America will depend as much on social acceptance by the public as on biological (and presumably, environmental) variables.[7] The examination of literature in this area is highly relevant to the study of human-bear relations and bear management in Japan, because whilst the Asiatic black bear is omnivorous and not generally predatory, it shares many characteristics with animals which are carnivores/predators: for instance, its large size; its requirement for large amounts of food; its large range; and the potential danger it poses to human beings.

As noted, it is not only wildlife biologists and managers who are interested in the human dimension of wildlife management, Naughton-Treves and Treves point out that geographers, anthropologists and other social scientists can illuminate the deeper causes of conflict and help guide long-term management solutions to human-wildlife conflict.[8] In the field of anthropology, it is suggested that

the heightened interest in human relations with animals is driven in part by the 'considerable amount of boundary crossing going on in the contemporary world' between humans and animals.[9] Mullin (1999) further suggests that it is not only the crossing of boundaries that is of interest, but the way boundaries are subject to continual redefinition and conflict. Whereas it was common to assume that there is some kind of universal conceptual boundary between humans and animals, like that between culture and nature, recent scholarship notes a greater degree of cultural and historical diversity, and both animals and nature are now more likely to be described as culturally and historically specific.[10] Consequently, much recent historical and anthropological research on human-wildlife conflict focuses on understanding why and how peoples' views of animals differ.[11] Knight (2000a) points out that anthropological studies have also helped to demonstrate the variation in cultural understandings of wild animals in their connection to the idea of 'wilderness'—a category of environmental space beyond human control, which is evident in many cultures.[12] For example, Rye (2000) writes that for the forest-edge rice-farmers of Sumatra, the wild pig which raids their crops is intrinsically connected with both the geographical and spiritual realm of the rain-forest adjacent to their plots. To these farmers, the forest is 'a non-human space, uncultivated and potentially threatening, and the abode of malevolent beings and spirits'.[13] The idea of closely connecting a wild animal with a geographic, cultural and spiritual space encompassing wild nature is highly relevant to the Japanese case, in which a similar pattern is evident.

Human interference has a significant role in creating the circumstances which in turn lead to human-wildlife conflict, and this is reflected in a survey by Reading and Millar (2000) of a large number of endangered species worldwide. In all the cases of endangered carnivorous and omnivorous species surveyed in their study, human actions have caused the decline of the species, most frequently as a result of over-hunting (game-hunting, culling and poaching); human-caused depletion of natural food sources; and habitat destruction or fragmentation. The factors leading to wildlife conflict are in turn intensified in societies where poverty, socio-economic inequality, economic or social instability or warfare is prevalent. Furthermore, Woodroffe, Thirgood and Rabinowitz (2005), point out that the costs (both financial and social) of living with wildlife are currently borne by rural people (particularly, though certainly not exclusively, in developing nations).[14] The case studies documented by Reading and Millar highlight the importance of public education and local support for conservation programmes. Alienation of rural people, particularly farmers, from the decision-making and policy formation process surrounding conservation and management programmes can often lead to antagonism towards the conservation programme and the animal itself.[15]

Knight notes that habitat depletion often leads to a rather counter-intuitive phenomenon of the 'endangered pest'—animals which cause agricultural and other damage, but are at the same time endangered. This is because habitat depletion has the effect of both endangering the reproduction of

wild animal populations and displacing these animals from their original habitat into human territories.[16] Knight observes that human-wildlife conflicts typically arise from territorial proximity and involve reliance on the same resources or a threat to human wellbeing or safety. Conflicts are particularly marked in human settlements in forest-edge regions, an observation that is especially pertinent to the study of human-wildlife conflict in Japan.[17] Knight notes that, according to optimal foraging theory, wild animals tend to feed in a manner that maximises their nutrient intake in the minimum possible time and with the minimum possible effort, and human-inhabited (anthropogenic) sites can offer such optimal foraging opportunities, in the form of food crops, animal feed, organic waste and so on.[18] The shared use of space by both humans and wildlife is referred to as 'multi-use landscapes' in the literature, and is a phenomenon observed in many countries around the world, including the Russian Far-East, Scandinavia and Africa.[19] The sharing of landscapes with wildlife means that the potential for conflict between wildlife and humans in the course of daily life is higher than in countries where wildlife habitat and human spheres of habitation are largely separate and distinct.

An understanding of perceptions of wildlife and the factors which influence perceptions is pivotal to the human dimensions approach to wildlife management.[20] Kellert et al suggest that physical and behavioural characteristics of a species, such as the animal's size, perceived intelligence, morphology, and mode of locomotion, are influential on peoples' perceptions of an animal. In addition, they cite cultural and historical associations as influential factors.[21] For instance, Gore, Knuth, Curtis, and Shanahan (2006b) suggest that the perceptions of bears among the American public are influenced in part by the bear's phylogenetic similiarity to people, high intelligence, aesthetic appeal, relatively large size, capacity to stand erect, omnivorous diet, and historic and cultural relationship with people.[22] Kellert (1994, cited in Gore et al., 2006b) found that these factors contributed to most North American's positive perception of bears.[23] Various scales have been developed by researchers to assess and measure social values and perceptions pertaining to wildlife. One such scale is a typology of attitudes towards animals developed by Kellert by analysing responses from open-ended interviews.[24]

Demography also appears to play a key role in influencing attitudes: surveys by Kellert in the United States have indicated a greater willingness to protect endangered wildlife among university educated people, single people, those under 30 years of age, and residents of large cities. Importantly, people who fall into these demographic groups are also less likely to be rural people directly affected by pestilence and other human-wildlife conflict. Those with the lowest scores were found among persons over 75 years of age; those with limited education; farmers; and residents in more isolated rural areas.[25] Subsequent studies such as one by Wolch, Gullo and Lassiter (1997) examining coverage of cougar-related issues in *The Los Angeles Times* over ten years made similar findings.[26]

In many societies, there is a significant gap between rural and urban attitudes towards wildlife and wildlife conservation. For instance, in his examination of human-wildlife conflict in the European Alps, involving the bear, wolf and the lynx, Breitenmoser (1998) notes in particular the gap in perceptions between rural and urban people concerning the issue. He suggests that the urbanised majority of the populace has adopted a more distant and romantic view of carnivores and nature in general. On the other hand, people in rural regions are not only affected by pestilence but also the constraining legislative measures which protect these species, which generally make them less tolerant of wildlife. In the regions affected, the recovery of the populations of these previously locally extinct predators is seen by some as a symptom of rural depopulation and the increasing abandonment of farming. Thus, to those affected by these changes, the wolf, lynx and bear are negatively viewed as symbols of the decline of the farming way of life.[27] A similar gap between rural and urban attitudes to wildlife is documented in the case of the Mexican wolf recovery programme.[28]

Gray (1993) notes that there have been few studies of people's knowledge of wildlife and its influence on attitudes towards wildlife, but suggests that increased knowledge of wildlife will promote an appreciation of it.[29] Nevertheless, literature indicates that causal relationships between knowledge (and attitudes and values) and behaviour are not definitive.[30] Kellert et al point out that 'education aimed at fostering more positive attitudes toward predators by increasing factual knowledge has often proved ineffective, sometimes even reinforcing negative attitudes…'. [31] However, there have also been studies which have demonstrated a positive correlation between knowledge and perceptions. For instance, a study of the relationship between knowledge and perceptions of wildlife conducted by Marker et al (2003) found that cheetah culling by farmers in Namibia was associated with *perceived* cheetah problems, rather than *actual* predation: they found that when surveyed, 60 per cent of farmers who reported not having a problem with cheetahs still culled them when they were found on the farmer's property. They found that tolerance towards cheetahs (as reflected in culling figures and respondents' answers to survey questions) increased over time in response to information about the cheetahs and ways to mitigate damage caused by them and other predators.[32] Other research has also suggested that the perception of danger and risk is often more pivotal to attitudes and responses to wildlife than actual experience of pestilence or depredation. For instance, in their study on attitudes towards wolves in Wisconson, Naughton-Treves et al (2003), found that actual experience of depredation by wolves was less influential than perceived risk of depredation in shaping farmers' and hunters' attitudes towards wolves. They further suggest that these perceptions are formed early in life and are deep-rooted and value-laden.[33]

In societies where wildlife pestilence has historically been a normal part of farming life, cultural or philosophical frameworks have developed for dealing with it. For example, in Malawi, farmers have a

saying: ‘in planting maize you need to put three seeds in the hole—one for yourself, one for the guinea-fowl, and one for the bush-pig’, and similar sayings have been reported elsewhere.[34] In some societies, wildlife pestilence has been interpreted as punishment for immoral human conduct. For example, according to Quechua (an indigenous culture of South America) mythology, pumas ‘eat the llamas of guilty people’; and in the Trobriand Islands (Papua New Guinea), wild pig damage to taro crops is deemed evidence of illicit human behaviour.[35] It is possible that societies which have developed such folklore to help explain the incidence of pestilence and deal with it as a normal part of life demonstrate higher levels of tolerance towards wildlife pestilence. However, Knight also suggests that the threshold of tolerance for damage by wildlife can change over time, despite the level of damage remaining constant. He notes, for example, that by increasing predictability and enhancing a farmer’s sense of control over the crop, new technological inputs in agriculture such as pesticides can have the effect of lowering a farmer’s tolerance of damage.[36]

There is little literature concerning the human dimension of wildlife management or human-animal conflict in Japan. One article by Watanabe and Ogura (1996) presents the findings of a survey conducted in 1994 investigating perceptions of the value of wildlife and wildlife management among residents in ‘rural eastern Aichi’ (a prefecture in central Honshū).[37] Respondents were asked to choose statements which describe the value of wildlife to society, and to themselves as individuals, respectively. Respondents were also asked their preferred approach to wildlife conservation, management and wildlife pestilence. It was found that those individuals who preferred ‘protecting’ and ‘tolerating’ as management approaches were more likely to point to ‘the ecological and psychological value’ of wildlife. ‘Ecological’ value included statements such as ‘wildlife functions to maintain an ecosystem’ and ‘psychological’ values included ‘wildlife provides a sense of beauty and interest’ and ‘brings a realisation that there is life outside the world of human beings’. However, one major shortcoming of the research is that the scope of ‘wildlife’ was left to be defined by the respondents themselves, and encompassed wildlife—such as the African elephant—not encountered in the wild in Japan, limiting the relevance of the findings to wildlife management practice in Japan.

In a more specific study, Kanzaki, Kenmiya and Maruyama (2003) present findings of research conducted in Yamanashi Prefecture which investigated farmers’ perceptions of agricultural damage caused by wild boars and monkeys. The study found that while a relatively large percentage of respondents (38.5 per cent) identified the ‘development of forest environments’ (i.e. habitat destruction) as one of the key causes of increased pestilence by these animals, a vast majority advocated either cutting back the populations (61.8 per cent for wild boar and 70 per cent for monkeys) or the forced extinctions of these two animals (25.4 per cent for wild boar and 25 per cent for monkeys).[38] While the study acknowledges that there may not be a link between population densities of these animals and the incidence of pestilence,[39] it does not explore this further.

In his book *Saru to ningen no kankyō mondai (The environmental problems of monkeys and humans)*, Maruyama (2006) explores the 'factors leading to the dislocation of humans from the world of nature' through the examination of the 'monkey problem', i.e. monkey pestilence, in Japan. The author is a sociologist, and his main focus is on the way in which the Japanese relationship with the natural environment has developed, using the monkey as a case study, rather than a study of the causes leading to the human-animal conflict itself. However, it is a valuable study of the multiplicity of ways in which the monkey has been perceived in Japan's cultural history and in contemporary society, and the way those perceptions and images relate to the way in which the social response to the 'monkey problem' has evolved.[40] This study provides a useful parallel to the present thesis, which will also plot the diversity and development in the way the bear has been perceived over time, and how this informs the response to the 'bear problem' today.

The literature surveyed above relates to the human relationship with bears in the wild. However, another major aspect to the human-animal relationship involves the keeping of 'wild' animals in captivity. The moral framework which governs how the Japanese perceive this practice will be discussed in the section to follow. The development of thought in the West concerning the ethical dimension of the human-animal relationship will also be outlined, in order to provide a measure against which to compare the Japanese framework governing this aspect of the human-animal relationship.

2.3 Animals and ethics: A Western and Japanese comparison

As discussed, an important aspect of any examination of human-animal relationships is the ethical dimension. This is especially important when humans manipulate or control animals in ways which bring benefits to themselves. While this ethical aspect is evident in some form in every society, the nature and level of discourse on the ethics of treating or using animals in particular ways may vary from culture to culture. This discourse in the West provides a framework for consideration of the ethical dimension of the human-bear relationship in Japan.

There is a long history of philosophical debate in the West regarding the rights of animals and the moral obligations of humans towards animals and their welfare. In his examination of the philosophical debate concerning animals and ethics in the West, Taylor (2003) traces the origins of the debate concerning the moral status of animals back to the philosophers of Ancient Greece. Aristotle reasoned that there was a hierarchy in the natural world whereby humans were in a position superior to animals, owing to our ability to reason. He argued that whatever is by nature superior should govern what is inferior, and therefore there 'should be neither friendship nor justice' between humans and animals.[41] The Stoics also believed that justice can only be extended to other rational

beings, and because animals are not rational, they argued, the rules of justice did not apply to human relations with them. Nevertheless, even in Ancient Greece, there were philosophers who had a different view on the treatment of animals: Pythagoras and Empedocles, for example, believed that humans may be reincarnated forms of former human beings, and therefore by killing an animal, a person might be killing their own ancestor. Pythagoras even advocated vegetarianism.[42] Nevertheless, despite these contrary views, Aristotle's hierarchical view of the natural world was the dominant line of thought in the West well into the twentieth century (and some may argue, persists to some extent today).

In his examination of the moral status of animals in the history of Western philosophy, Steiner (2005) outlines how, with the advent of the Middle Ages, the Christian view of animals and nature became dominant in Europe. Not only did it reinforce the human-nature dualism already established by philosophers, but it also provided further justification for human superiority over animals. In the book of Genesis, for example, God grants Adam dominion over the earth and the animals on it. Furthermore, building on the thinking of the Stoic philosophers before him, Augustine argued that only human beings are subject to salvation, and that all other beings on earth were created to serve humans in their quest for salvation.[43] While this dualistic view of the human-animal relationship allowed for the dominance of humans over animals and justified the utilisation of animals to fulfil human needs, it also gave rise to the reasoning that, as morally superior beings (who are closer to God), humans are morally responsible for the welfare of animals in their care. This idea of human dominion over animals and nature, and the related concept of stewardship, became the philosophical foundation of the nature conservation movement in Europe and North America in the nineteenth century.

Naturally, the concept of human stewardship in relation to the welfare of animals is an ideal, and like many ideals, is not always practised. However, where the welfare of animals is ignored in Western societies, there is usually a recognition that an ethical transgression has been made. Thus, there is frequent discussion in Western media and society about the ethics of hunting, and the use of animals in entertainment and medical, pharmaceutical or other experimentation. Therefore, while arguably cruel or unethical practices frequently take place in the West, there is continual examination and debate of the ethical aspects of our relations with animals.

In comparison, in the Japanese cosmology, there was no separation between god(s), nature and humans. This is demonstrated by the fact that, as noted by Seidensticker (1979), Tellenbach and Kimura (1989), and Stewart-Smith (1987), there was no nominal word for 'nature' until the Japanese chose one (from Chinese) to translate the concept of nature introduced from the West.[44] Animistic Shinto and folk religion saw gods (or the divine) in nature, including humans. Taoism, introduced

from China, reinforced this view, with its "…organic view of man and the universe, the notion that all phenomena (including man) are knit together in a seamless web of interacting forces…".[45] The introduction of Buddhism brought with it the concept of reincarnation, whereby a human may have been an animal in a past life, or may be reborn as an animal in the next. In this syncretic folk-religious/Shinto/Taoist/Buddhist cosmology, there was no sense of humans being morally superior to, or dominant over, animals—the relationship between humans and animals was seen as one of equity, at least in the sense of both humans and animals being equally close to 'god' (*kami*) or the divine. At the same time, the absence of the concept of human dominion over animals and nature meant that the idea of humans being morally obliged to protect the welfare of 'morally inferior' animals did not develop in Japan.

In the sense that Buddhist cosmology sees all life as equal, and Shinto beliefs see a spirit (*kami*) in all forms of nature, it might be assumed that the sanctity of life is deemed paramount in these religions. However, in practice, both religions are decidedly non-interventionist in their role regarding the welfare of animals. Stewart-Smith suggests that the Shinto and Buddhist-based belief about the inevitability of death and destruction and the Buddhist concept of fate, along with the Shinto conviction that nature will always replenish itself, may contribute to a generally passive and pragmatic attitude towards nature.[46] Indeed, as Stewart-Smith points out, the choice of the word for the Western concept of nature—*shizen* 自然, meaning spontaneity or 'from itself, thus is'—has also been linked with this perception of nature.[47] Furthermore, it is suggested by both Saitō (1983) and Stewart-Smith that the Buddhist belief in the transience of life and the inevitability of suffering may lead to the belief that, if humans are part of nature, then human actions are also 'natural', even where they lead to the destruction of nature.[48]

One of the few philosophical or religious ideas dealing with a moral aspect of the human-animal relationship is that of *sesshō* 殺生, the prohibition of taking life, a concept which has its foundations in Buddhist thought. Taken to its extreme, this stricture meant that even the killing of the smallest of insects was discouraged, and in some Buddhist sects, monks carried whisks which were used to flick flies away rather than kill them, and brooms to sweep away insects to avoid stepping on them. However, the influence of these Buddhist strictures on society as a whole—much like passages in the Bible exhorting people to 'love thy neighbour'—should not be overestimated. While Buddhist-inspired beliefs about the sanctity of life do appear to have influenced attitudes towards killing of animals, people who relied on animal products for their livelihoods found ways to resolve the moral conflict this presented. For example, *matagi* hunters would deal with any concerns of an animal's spirit seeking vengeance by carrying out rites or prayers to seek forgiveness for its killing.[49]

Though there is very little historical literature which provides insight into how philosophical thought concerning animals and ethics developed in Japan, two excerpts from Yoshida Kenkō's *Tsurezuregusa (Essays in Idleness)*, written in the early 1330s, provide a rare glimpse of one man's views on the subject of animals and ethics in medieval times. Yoshida Kenkō, a court poet, was from a family of hereditary Shinto priests. He was strongly influenced by Buddhism, and later became a Buddhist monk. With little to compare it with, it is difficult to know how typical his attitudes were for a man of his time, but it at least provides some insight into one learned man's view of the moral aspects of the human-animal relationship in medieval Japan.

> Domestic animals include the horse and the ox. It is a pity we must bind and afflict them, but unavoidable, since they are indispensable to us…
> …All other birds and beasts are useless. When animals that run are confined to pens or fastened with chains, when birds that fly have their wings clipped or are put in cages, the longing of the birds for the clouds and the grief of the animals over the separation from their mountains will be unceasing. How can any man who is capable of imagining how wretched he would feel under the circumstances take pleasure in keeping these pets? A man who enjoys torturing living creatures is of the company as Chieh and Chou.*[50]
>
> As a rule, people who take pleasure in killing living creatures or making one creature fight another, are themselves akin to the beasts of prey. If we carefully observe the countless varieties of birds and beasts, even tiny insects, we shall discover that they love their children, long to be near their parents, that husband and wife remain together, that they are jealous, angry, greedy, self-seeking, and fearful for their own lives to an even worse degree than men because they lack intelligence. How can we not feel pity when pain is inflicted on them or people take their lives?[51]
>
> *Two Chinese emperors who were known for their extreme cruelty.

These excerpts show a clear tendency to see animals first and foremost in terms of their utility, i.e., their value to human beings. Evident in the second excerpt is the view that the main differentiating factor between animals and humans is the lack of intelligence of animals. These views are strikingly similar to the predominant view of the Western philosophers outlined above. Lastly, Yoshida Kenkō expresses the view that human beings should not be cruel to animals because by doing so, they prove themselves to be no better than an animal themselves (not because it is inherently wrong in itself). Again, this is a view not dissimilar to that expressed by Kant, who enjoined people not to be cruel to animals because such actions make people more likely to treat fellow human beings callously.[52] It is likely that in these views Yoshida Kenkō was influenced more by the Chinese Confucianist world view, whereby the world and society is seen in terms of a strict hierarchy, than animistic folk-religious or Shinto beliefs, a suggestion reinforced by the reference to Chinese emperors known for their cruel and immoral conduct. However, one idea notably absent in these excerpts is that of the human obligation to care for animals or to intervene where cruelty occurs.

The lack of a concept of stewardship over nature and animals has wider implications for nature conservation and wildlife conservation generally: while the concepts of human dominion and stewardship over nature led to the development of the nature conservation movement in the West, there was no such philosophical spur to the formation of a similar movement in Japan. This idea of 'lack of stewardship' is expressed by one wildlife expert as wildlife being *mushubutsu* 無主物, or 'ownerless'. This, he suggests, is in contrast to the West, where wildlife belongs to the nation or public.[53] A similar view is expressed by Maita (1998), who suggests that the concept of 'public ownership' (*kōyū ishiki* 公有意識) needs to be adopted as the basis of a workable wildlife conservation ethic in Japan.[54] This idea of Japanese wildlife having no owner is not just a philosophical one, it is actually grounded in law. Mano and Moll (1999) state that since the enactment of the Civil Law (1896), wildlife has been considered 'without keeper' (The Civil Law, Article 239).[55]

It might be argued here that the priority placed on conserving a species is a function of its cultural significance; in other words, that the protection of an animal that is culturally very significant in Japan's mainstream culture might be more highly prioritised. However, the experience of the red-crowned crane (*Grus japonensis)* would appear to demonstrate that the cultural value traditionally attributed to a creature does not necessarily have a strong influence on its treatment in reality. The crane was historically culturally significant in Japanese culture: in ancient Japan, it was worshipped as a sacred bird and associated with rice cultivation;[56] under the influence of continental culture, it came to be associated with longevity and happiness, and became a popular artistic and design motif, featuring in countless paintings, kimono fabric designs, lacquer-ware and so on. Thus, the crane motif and symbol could be argued to be 'quintessentially Japanese', so strong its association with Japanese artistic culture. However, this cultural significance did little to prevent the rapid and nearly irreversible decline of the bird itself. By the early twentieth century, the formerly ubiquitous crane had become extinct on the Honshū mainland as a result of hunting and habitat destruction. It was only saved from total extinction when, in 1924, ten cranes were discovered in the remote Kushiro Marsh in eastern Hokkaidō.[57]

Instead of being based on a concept of stewardship or a similar philosophical tenet, early concerns with the environment were largely driven by damage to human health and livelihood attendant with the destruction of the environment, rather than being concerns with the destruction of the environment itself (see for example, Huddle and Reich, 1975; McKean, 1981; Strong, 1977; Hatakeyama, 2005). As noted by these authors, the idea of conserving the natural environment *for its own sake*, rather than to protect human livelihood and health, only developed in the post-war years, and even then, these concerns soon faded into the background in the face of the human tragedy which resulted from the environmental pollution crises of the 1960s and 1970s.[58] The idea of nature conservation only became

mainstream in the 1980s and 1990s when the relative affluence and wellbeing of the Japanese populace allowed people to consider the health of the natural environment itself. Wildlife conservation has lagged even further behind, only becoming part of the popular discourse in the 1990s, with the advent of legislation dealing specifically with wildlife conservation and management, which will be discussed further in Chapter Six.[59]

2.4 Summary

This chapter has examined the literature relevant to the two main aspects of the human relationship with the bear in Japan, both in the wild and in captivity. Firstly, the literature relating to the emerging, multi-disciplinary field of 'human dimensions' in wildlife management was examined. Particular reference was made to the way the field informs our understanding of how people perceive animals, and the possible 'human-related' barriers that arise to thwart a society's attempts to successfully manage or conserve wildlife. The human dimension has become an important consideration in the management of carnivores/predators in particular, as they tend to elicit higher levels of fear among humans than other groups of animals, and are therefore more complex to manage from the human-dimensions perspective. The literature highlights some concepts useful in the examination of the phenomenon of human-bear conflict in Japan: for example, the concept of 'endangered pest', a species which is endangered, but at the same time causes pestilence, and the recognition that universally, human-wildlife conflict is particularly marked in forest-edge communities. As will be seen in the following chapters, this is also common feature of much human-bear conflict in Japan.

The ethical aspects of human-animal relationships were also examined and the difference in the development of Western and Japanese framework for understanding this aspect were discussed. While in the West a concept of stewardship developed from the notion of there being an unequal relationship between humans and animals, in Japan, where the view of animals was informed by animistic and Buddhist ideas whereby the relationship between animals and humans was equal, the concept of a moral obligation to protect the welfare of animals did not develop. Thus, for example, there is relatively little moralising connected with the treatment of bears and other animals kept in captivity in Japan, and, as will be discussed further in Chapter Five and Ten, people tend instead to empathise with an animal in a more anthropopathic way, using human emotions or descriptors to interpret and comment on what they see. An understanding of the basis of this lack of moralising is important to ensure that when making observations of Japanese attitudes and behaviour relating to bears—particularly of their treatment in captivity—Western values do not become the sole standard by which behaviour and attitudes are judged.

[1] The English literature concerning bear management and conservation is dominated by that relating to North America. A literature search in languages other than English is likely to produce a more varied distribution of literature. While the present author endeavoured to utilise literature from as geographically varied sources as possible, this is a limitation that needs to be noted.
[2] Hoare (1995), Kangwana (1995), Tchamba (1995), Barnes (1996), Western (1997), as cited in Naughton-Treves & Treves, 2005: 253.
[3] This is the definition offered by Manfredo, Vaske & Sikorowski, 1996: 54. As with many concepts, there is no universally accepted definition of the concept of 'human dimensions' in wildlife management.
[4] Manfredo et al, 1996: 53; Decker & Chase, 1997: 1.
[5] Decker & Chase, 1997: 1.
[6] Morris, 1998: 1.
[7] Kellert et al, 1996: 987.
[8] Naughton-Treves & Treves, 2005: 252.
[9] Martin (1995), as cited in Mullin, 1999: 202.
[10] Mullin, 1999: 202.
[11] Mullin, 1999: 217.
[12] Knight, 2000a: 10
[13] Rye, 2000: 111.
[14] Balmford & Whitten (2003), as cited in Woodroffe, Thirgood, & Rabinowitz, 2005: 405.
[15] Reading & Millar, 2000.
[16] Knight, 2000a: 13.
[17] Knight, 2000a: 2–3. The phenomenon of wildlife subsisting in human spaces is sometimes referred to as 'commensalism', and the spaces involved are referred to as 'commensal habitats'.
[18] Knight, 2000a: 6.
[19] Woodroffe, Thirgood, & Rabinowitz, 2005: 389.
[20] Gray, 1993.
[21] Kellert et al, 1996: 978.
[22] Gore et al, 2006b: 37.
[23] Kellert (1994), cited in Gore et al, 2006b: 37.
[24] Gray, 1993: 116. The ten attitudes Kellert identified are: naturalistic, ecologistic, humanistic, moralistic, scientistic, aesthetic, utilitarian, dominionistic, negativistic and neutralistic.
[25] Gray, 1993: 127. In respect to large predators in North America, Kellert et al (1996) cite research which has found that farmers and ranchers have consistently expressed the most negative attitudes, generally motivated by fear of economic loss (Kellert (1985, 1986, 1991), Brown (1986), and Reading and Kellert (1993), as cited in Kellert et al, 1996: 987).
[26] Wolch et al, 1997.
[27] Breitenmoser, 1998.
[28] Reading & Miller, 2000: 210.
[29] Gray, 1993: 126.
[30] Hungerford & Volk (1990), as cited in Kellert et al, 1996: 986.
[31] Murray (1975), Hook & Robinson (1982), and Kellert (1986), as cited in Kellert et al, 1996: 986.
[32] Marker et al, 2003: 1290, 1296–8.
[33] Naughton-Treves et al, 2003: 1508. Incidentally, their research on bears and coyotes in the United States indicates that between 11 and 71 per cent of the carnivores killed by trained wildlife-control agents showed no evidence of having been involved in depredations. (Nevertheless, such cullings serve the function of placating the aggrieved victim of pestilence, whether the individual animal was responsible or not.) This result, it is suggested, calls into question the idea of 'precision' killings of 'guilty' carnivores (Naughton-Treves et al , 2003: 1509).
[34] Knight, 2000a: 10.
[35] Zuidema (1985), and Malinowski (1935), 119, as cited in Knight, 2000a: 17.
[36] Knight, 2000a: 9–10.
[37] Watanabe & Ogura, 1996.
[38] Kanzaki et al, 2003: 4, 6, 8.
[39] Kanzaki et al, 2003: 8.
[40] Approaching the issue from an anthropological perspective, Knight (1999) also explores human-monkey conflict in Japan, focusing particularly on its 'natural symbolism'.

[41] Taylor, 2003: 33–4.
[42] Taylor, 2003: 34.
[43] Steiner, 2005: 117.
[44] Seidensticker, 1989: 17; Tellenbach & Kimura, 1989: 153–4; Stewart-Smith, 1987: 49.
[45] Wright, 1969/1970: 248.
[46] Stewart-Smith, 1987: 50.
[47] Stewart-Smith, 1987: 49.
[48] Saitō, 1983: 224; Stewart-Smith, 1987: 49.
[49] See Knight, 2003: 39; 79; 185–186.
[50] Yoshida, Keene (trans.), 1967: 101–4.
[51] Yoshida, Keene (trans.), 1967: 107–8.
[52] Taylor, 2003: 45.
[53] Hazumi Toshiro 羽済俊裕, personal communication, June 3, 2005 (Kawasaki).
[54] Maita, 1998: 44.
[55] Mano & Moll, 1999: 128.
[56] Inada, 1977: 605.
[57] NHK, June 2003.
[58] See Huddle & Reich, 1975; McKean, 1981; Hatakeyama, 2005: 5.
[59] Such as the hosting of the CITES (Convention on International Trade of Endangered Species) conference in Kyoto in 1992.

Chapter Three: The bear in culture—global patterns

3.1 Introduction

This chapter will examine how the bear has been perceived and treated by humans throughout history, focusing firstly on bear symbolism and ritualism in Boreal hunting cultures. By examining perceptions and symbolism in a global context, insights can be gained into how the cultural understanding of the bear in Japan fits within cultural perceptions of the bear worldwide. Spiritual significance has been assigned to the bear by northern hemisphere cultures since pre-history, and continuity in bear imagery and rituals has been identified across a wide geographical area. A summary of this literature, predominantly archaeological and anthropological in nature, will be covered in section 3.2. Naturally, the history of the human-bear relationship has not only been one of reverence and symbolism—exploitation and persecution of the bear has also featured prominently in history, and literature relating to this aspect of the human-bear relationship will be addressed in section 3.3. This will be followed by a discussion of the literature concerning the bear, and particularly the bear's cultural significance, in Japan.

3.2 The global distribution of bear symbolism and significance

This section will review the literature dealing with the cultural and anthropological significance of the bear worldwide. The purpose of this is to elucidate the key characteristics of bear symbolism internationally, to understand its geographical distribution, and to ascertain whether any parallels can be made with the bear symbolism evident in Japanese history and prehistory—in other words, to locate bear symbolism in Japan within the patterns evident throughout the northern hemisphere, where bear distribution is concentrated.

Before examining the distribution and nature of bear symbolism, the distribution of the bear itself will be outlined. There are eight living species of bears. Excluding the Asiatic black bear, which will be examined in more detail in Chapter Four, these are: the giant panda (*Ailuropoda melanoleuca*), distributed in southwestern China; the spectacled bear (*Tremarctos ornatus*), distributed in northwestern South America; the sun bear (*Ursus malaynus*), distributed in northwestern South America; the sloth bear (*Ursus ursinus*), distributed in Southeast Asia; the American black bear (*Ursus americanus*), distributed in North America; the brown bear (*Ursus arctos*), distributed in Europe, northern Asia and Northern America; and the polar bear (*Ursus maritimus*), distributed in the Arctic. With the exception of the sloth bear and the sun bear, the distribution of all other species falls entirely within the northern hemisphere, and even in the case of these two species, the major part of their distribution is north of the equator. Thus, the bear, and culture surrounding the bear, is largely a northern hemisphere phenomenon.

The roots of bear ceremonialism or at least symbolism can be traced back to pre-history: bears first appear to have been accorded spiritual significance in the Middle Palaeolithic era (beginning about 200,000 years ago) by Neanderthal man (*Homo sapiens neanderthalensis* or *Homo neanderthalensis*). Evidence of this has been found in what Campbell (1984) describes as bear sanctuaries, discovered in the European Alps.[1] In these sites, bear skulls were placed on cave niches, in a manner suggesting primitive altars. The supposition is that Neanderthal man worshipped the spirits of the bear, and perhaps also held the belief that the bear deliberately allowed itself to be hunted and killed for the benefit of humans. Campbell describes these so-called bear sanctuaries as the 'earliest evidence anywhere on earth of the veneration of a divine being' and as an indication of ritual sacrifice. He suggests that these bear sanctuaries are the origin of the bear cults which subsequently spread across northern Europe, Asia, and finally, North America.[2]

Cave drawings by Cro-Magnon man dated from the Upper Palaeolithic era (from 35,000 to 10,000 years ago) depict wildlife such as bison and bears—often wounded. The continued importance of the bear as an object of worship is suggested by an archaeological find in a cave in Montespan, France: a model of a large bear, in front of which was placed a bear's skull covered with a bear pelt, in a form of 'altar arrangement'.[3] This suggests further development from the rituals practised by Neanderthal man. Leeming (2003) surmises that to these early *Homo sapiens*, the bear was a kind of totem spirit or animal master, and was likely to have been the object of a 'sacramental hunt'.[4]

Perhaps at least part of the reason for the early human fascination with the bear was the various attributes making it similar to man: its human-like appearance (minus its fur), its human-like ability to stand on its hind legs and even walk upright, the sow's attentive mothering of its young, and its habitation of caves, which were also the dwellings of Palaeolithic man. Above all, however, these early humans were perhaps drawn to the bear's mysterious ability to hibernate: the bear appeared to bury itself, and be 'reborn' in the spring. For this reason, it is likely that the bear was thought to have magical powers of resurrection and it was due to these powers that it came to be venerated or worshipped. It is probable that the idea of rebirth and the cyclical nature of life became intrinsically associated with the bear in these early times. Indeed, there is at least tentative evidence of this: Sanders (1993) states that bear bones have been excavated from a Neanderthal grave-site in France, and human bodies covered in bear fur have also been excavated.[5] It may be that Neanderthal people were, through these rituals, attempting to 'borrow' this capacity for rebirth for themselves.

The people of the Neolithic Vinca culture of southeastern Europe produced bear-shaped vases and water receptacles incised with chevrons and zigzag and triangular markings, representing water. For instance, water-bearing pots and vases found in a 6,000 B.C. site in former-Yugoslavia are moulded in the shape of bear paws or in the form of bears, and decorated with zigzag and triangular markings.

Shepard and Sanders (1985) suggest that these markings and the purpose of the receptacles signify the bear's associations with water, springs and the rainy season.[6]

The most extensive review of the customs and imagery associated with bears in societies throughout the world was published in 1926 by anthropologist Alfred Hallowell. While several scholars have reviewed or revised aspects of Hallowell's work (e.g. Berres, Stothers and Mather, 2004; Edsmen, 1987), it still represents the most comprehensive investigation of the cultural significance of bears world-wide. In both Hallowell's and subsequent studies on bear ritual and customs, bear ceremonialism has been found to be distributed across a vast area of the northern hemisphere. Hallowell concludes: 'no other animal was found to attain such universal prominence as the bear, nor to have associated with it, over such a wide geographical area, such a large series of customs. Of all the game animals hunted in the north, the bear is the most constant recipient of special attention…'.[7]

In an attempt to explain the wide distribution of bear ceremonialism, Hallowell (1926) examines the contemporary theories and failing to find these convincing, posits his own. The first theory is the psychological hypothesis: that human beings react in similar ways to certain characteristics of the bear, the most significant of which being its many human-like traits which lend themselves to anthropomorphism ('anthropomorphisation' is the term Hallowell uses). Hallowell is not convinced by this theory, first and foremost because 'whereas the "human traits" of the bear are readily observable to anyone, the attitude of veneration does not coincide with the geographical distribution of the species. It has a very much narrower provenance'.[8]

Similarly, Hallowell rejects an economic hypothesis—i.e., that the level of propitiation of animals is proportional to their usefulness—for two key reasons. Firstly, because the bear is of 'economic importance over a much wider area than that in which veneration or ritual observances occur'. Secondly, because in the regions in which the most prominent beliefs and rituals connected to bears occur, such as Siberia, Finland, regions of North America, Finland and Scandinavia, the bear is not always the most important animal from an economic standpoint, and yet more economically important animals are not necessarily the object of special customs or ritual. For example, he suggests that to the northern forest-tundra people in North America and Eurasia, the reindeer (caribou) is more fundamental to their subsistence economy than the bear.[9] In fact, Berres et al (2004) note that historical documents of the indigenous northeast groups of North America provide evidence to the contrary in this particular case, and state that 'the economic significance of the bear may also be considered a source—though not a predominant one—of its power among many traditional peoples of the northeast.' Nevertheless, they support Hallowell's overall conclusions.[10] Hallowell also makes the point that animals which appear most conspicuously as decorative motifs may not necessarily be the

same as those which figure prominently in mythology or which are economically significant in a particular society.[11]

In place of these psychological and economic theories, Hallowell puts forward what he calls the 'historico-geographical interpretation' of the distribution of bear ceremonialism: in effect, he regards the characteristic attitudes and practices associated with the bear held or practised by a tribe or people as a function of those peoples' historical relationship with the animal and not due to 'any naïve observation of the traits of the species, or necessarily connected with the creature's "usefulness"'.[12] He points to evidence of this in the geographical distribution of bear ceremonialism: striking similarity in the type and nature of bear ceremonialism occurs throughout the region of the Boreal hunting peoples of the American and Eurasian continents (excluding northeastern Siberia and the northwest coast of America), but not in the Arctic coastal regions to the north or tribes further south.[13] Hallowell supports his argument by the observation that bear ceremonialism had precisely the same distribution as a number of other cultural characteristics found in bear-hunting cultures throughout the northern hemisphere, including the use of the snowshoe and moccasin; a particular style of clothing; a hand-drum used by shamans; certain techniques of divination; certain theories of disease; and important myths and tales. These, along with bear-hunting rituals, were characteristics of what Hallowell called an 'ancient Boreal culture'.[14] He concludes that bear ceremonialism in North America is the result of the diffusion of cultural traits of ancient Boreal hunting groups from Eurasia as they settled throughout North America.[15] While finding that the bear imagery and ritual is more widely distributed among the indigenous cultures of North America than originally found in Hallowell's study, the research cited by Berres et al also supports his 'historico-geographic' hypothesis.[16]

Certainly, the common traits of rituals and beliefs pertaining to bears throughout this region is striking. For example, Edsmen (1987) states that the prayers, use of language taboos, atonement rites (performed immediately before or after killing the bear), and taboos imposed upon women are common to many of these groups.[17] Notably, these are all features evident not only in Ainu culture (the culture of the indigenous people of Hokkaidō, Japan) but also in the *matagi* hunting culture in Japan, which will be examined in Chapter Eight. Rockwell (1991) also draws attention to numerous parallels between bear-related rituals and customs in Europe, Asia and North America in his survey of bear imagery and rituals among Native American cultures of North America, including the bear's pivotal role in shamanic rites, healing, hunting ceremonies, and other lifecycle and annual observances. For example, Rockwell has found that the traditional bear-hunting rites of the Finns, and those of the Cree tribe of North America are fundamentally the same.[18] Another notable symmetry lies in the use of aliases as a means of avoiding the generic word for bear in native American, northern European and Asian bear-hunting cultures. One of the most common aliases is 'Grandfather'

or 'Grandmother', which is used by almost every group on both continents.[19] (The use of aliases is also evident in Japan's *matagi* hunting culture.) Rockwell has also found variants of 'bear tales' with very similar story-lines told in European, Siberian and Native American cultures. For example, the Tungus, a nomadic tribe of central Siberia, tell a story about a girl who is kidnapped by a bear which she later marries. It is so similar to one told by the Native American tribes that he suggests that it is possible that one is derived from the other, or that they have a common provenance. Tales of a similar theme are common also in European and Russian folklore, and in fact, as Rockwell points out, one of the oldest and most widespread folktales of the Old World concerns a half-bear/half-human son of superhuman strength being born of a human-bear union, and it is upon this that Beowulf, The Odyssey, and several old Norse sagas are based.[20]

Not only geographical continuity, but also temporal continuity is a feature of folklore and beliefs pertaining to bears. For example, beliefs which appeared in the literature in ancient times are evident in bear hunting cultures many centuries later: one such belief is that the bear sustains itself through winter by sucking on its paws. Edsmen states that one of the earliest known records of this belief was authored by the Roman writer Pliny the Elder in the first century A.D.[21] Campbell points out that this belief is still found in the folklore of cultures from Finland, across Eurasia and America to Nova Scotia and Labrador.[22] According to Inada (1977) a variation of this belief persists in upland regions in Japan today: that is, that bears crush ants between the 'palms' of their paws and sustain themselves over the winter by licking them off.[23] Similarly, the medicinal qualities of the bear's body parts have been recognised for many centuries and in many parts of the world. For example, Pliny the Elder, in his book *Natural History*, recommends bear fat as a preventative cure for thinning hair.[24] Bear fat is still used today in various parts of the world for its medicinal effects, including in Japan.

As noted, the bear has not only been the object of veneration and symbolic conceptualisation, but the object of human exploitation and persecution as well. This facet of the human relationship with the bear will be explored below.

3.3 Exploitation and persecution of bears

Bears have been used by humans for both material and entertainment purposes since ancient times. Some practices, which to some extent continue today, were particularly cruel and exploitative. In Ancient Rome, for instance, brown bears were forced to fight with dogs and gladiators in arenas, and polar bears were pitted against seals in aquatic battles.[25] Ward and Kynaston (1995) report that in one such event, in A.D. 237, gladiators killed more than 1,000 bears, probably leading to the extermination of local populations. (Subsequently, Roman emperors sourced their bears from northern Europe and North Africa, possibly contributing, Ward and Kynaston suggest, to the extinction of the African subspecies of brown bear.)[26] Such arena fighting involving bears is not limited only to

ancient times. It was also a popular form of entertainment in California during much of the nineteenth century, where brown bears were forced to fight against Spanish bulls; if they were reluctant to fight, they were provoked with sticks with nails in the end until they did.[27]

The practice of bear baiting (see Figure 1) dates back to the Middle Ages in Europe, where it remained popular for several centuries. The practice involves beating the bear and chaining it to a stake, either by its neck or hind leg, in the centre of a baiting pit. The bear was sometimes blinded first. It was then attacked by a pack of dogs and men with whips. This was a particularly popular 'sport' in England, where it was not outlawed until the middle of the nineteenth century.[28] Bear baiting has now largely been outlawed in most countries, but is still practised in Pakistan today.[29]

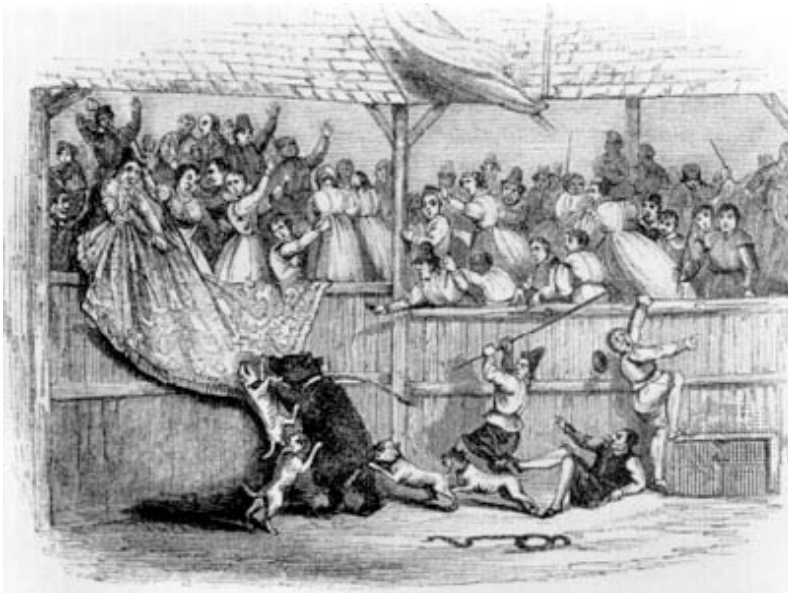

Figure 1: Bear-baiting in the 18th century, engraving, 1796.

Bears have been trained for other forms of entertainment, such as dancing and circus tricks, for hundreds of years. The practice of training bears to dance reportedly originated in India and Turkey in ancient times, and spread from these regions to Europe and North America.[30] It is still practised today in some countries: in 1993, it was estimated that there were about 25 dancing bears in Greece, more than 100 in Turkey, and over 1,000 in India.[31] In some countries, hot-plates were used to train bears to 'dance'. Training was facilitated by placing a ring, to which a chain was attached, through the bear's nose, upper lip or hard palate. [32] The training of bears to perform in circuses was popular in Roman times and is still popular in many parts of the world today (including Japan: see Chapter Five). This form of entertainment involves bears being dressed in clothes, and trained to perform tricks such as riding bicycles and walking tightropes.[33]

Bears have been utilised for their meat and hides since prehistoric times. In addition, organs and other body parts of bears have been used for medicinal purposes since at least the sixth century in China, from which the practice spread to other parts of East Asia, including Korea and Japan.[34] Of all bear parts utilised for their medicinal effects, the gall bladder has become the most valuable in recent decades, and gall bladders are known to sell for tens of thousands of (US) dollars each. The lucrative

market for bear gall drives bear poaching, not only in Asia, but in Russia and North America, where bears are often found slaughtered, their carcasses left with only the gall bladder removed.[35] It has also led to the practice of 'bear farming'. This involves the keeping of bears in small cages, often for several years, from which they are 'milked' for their gall bile through a catheter inserted into their abdomen. According to an international organisation formed to rehabilitate and house bears released from bear farms through a compensation system supported by the Chinese government, in February 2007, there were 7,000 bears held in such bear farms, little changed from the number reported in the early 1990s.[36]

Having reviewed the literature concerning the place of the bear in human culture throughout the northern hemisphere—both in terms of its symbolism, and its exploitation as a source of materials and entertainment—the next section will examine the literature concerning the bear and its cultural significance in Japan.

3.3 The cultural significance of the Asiatic black bear in Japan

An outstanding feature of literature concerning the Asiatic black bear on Japan is its very paucity. Whereas there has been a wealth of material regarding the cultural significance of the brown bear (*Ursus arctos*) in Ainu culture, which is briefly introduced below, there has been relatively little academic scholarship on the Asiatic black bear of Japan, either of a scientific nature (e.g. biological or ecological) or concerning the place of the bear in Japan's culture or history. In fact, a very rudimentary investigation of titles on a database listing all books and published documents held by Japanese libraries reveals that there are over four thousand titles listed containing the word *saru* 猿 (monkey) and over one thousand containing the word *kitsune* 狐 (fox), compared to only eight non-fiction Japanese books dealing with the Asiatic black bear (*tsukinowaguma* 月の輪熊). Of the listings for *saru* and *kitsune*, many are likely to be either duplicate listings or books or documents of only limited relevance, but nevertheless, this demonstrates that there is a vastly different level of interest in the bear, as compared to, for example, the monkey. 'Cultural embeddedness', rather than 'interest' is perhaps a more appropriate term to describe this: whereas the fox and the monkey are deeply entrenched in Japanese folklore, and even, it has been argued, in the way the Japanese see themselves (see Ohnuki-Tierney, 1987), the bear is almost invisible in Japan's mainstream cultural history.

This leads to the question: why is the bear practically ignored in the mainstream literature? Is this a measure of its significance to the Japanese? And if so, *why* has the bear lacked significance for the Japanese, who, on the other hand, have developed very strong cultural associations with other animals such as the monkey and the fox? These questions will be explored further in Chapters Eight and Nine, where the argument will be made that the bear's low profile in the literature reflects the lack of

significance of the bear in the 'mainstream' lowland culture of Japan only—not its significance in upland culture. In fact, the bear holds a high level of significance in upland hunting culture in Japan, but as Maita (1998) points out, these upland communities in which the bear was significant were comprised mainly of hunters as opposed to scholars or writers, and therefore little of their customs or beliefs regarding the bear were documented historically.[37] A plethora of ethnographies and other works relating to the life and customs of the upland hunting cultures such as the *matagi* have emerged in recent decades. From these, it can be seen that the bear was valued and respected by the upland hunters of Japan, who associated it with the *yama no kami*, or mountain deity (discussed in Chapter Eight). Many of the customs in this upland hunting culture show clear parallels with those of the Ainu, while some beliefs and customs, such as the aliases the upland hunters used for the bear, follow the same patterns evident throughout Boreal hunting cultures, as noted earlier.

In attempting to elucidate the place of the bear in Japanese cultural history, and especially upland culture, consideration of the bear's place in Ainu culture is important, given the high level of interaction between the inhabitants of Hokkaidō (the ancestors of the Ainu) and the inhabitants of the Tōhoku region previous to, and probably also following, this region's integration into the Yamato State in the eighth century. The brown bear is culturally very significant to the Ainu, who not only hunted the bear for its meat and fur, but who also believed it was a deity of the mountains (*kimun kamui)*.[38] In Ainu culture, these two contrasting aspects (the bear's hunting and deification) were reconciled by the belief that the bear gods visited the human world in order to bestow their fur and meat on humans as gifts.[39] A large body of Ainu folklore and ritual surrounds the bear, one of the most significant rituals being the *iyomante* (or 'sending ceremony').[40] *Iyomante* for bears can be divided into two categories: one for bears captured as a result of a hunt, and the other for bears reared as cubs for the purpose. In both cases, the objective is the same—to send the bear's spirit back to the spirit world (*kamui mosir*) to be regenerated.[41] The ceremony was traditionally held at the beginning of each year, before the hunting season recommenced.[42]

While still few in number, there has been an emergence of literature relating to the Asiatic bear in the last few decades. This is perhaps a consequence of the growing problem of human-bear conflict, which has 'dragged' the bear from its traditional place of relative obscurity into the 'public eye', but may also in part be attributed to a growing interest in 'upland culture'. These books tend to be largely practical or anecdotal in nature: the former providing readers with guidance and advice on how to prevent or control bear damage (e.g. Maita, 1996; Maita, 1998); the latter relating personal experiences, incidents, anecdotes or folklore concerning the bear (e.g., Miyazawa, 1989; *Gifu-ken Hōnyūrui Dōbutsu Chōsa Kenkyūkai*, 1994; Azumane, 1993; Kurisu, 2001; Itagaki, 2005). Only a few works (Toyama Prefecture Tateyama Museum (ed.), 1994; Miyao, 1989) examine the cultural and

social dimensions of human-bear relations in Japan: its place in Japan's cultural history; its traditional uses and value in society; its conservation status and management.

Of particular note in terms of the insight it provides into the complexity of the human-bear interaction in contemporary Japan, is *SOS Tsukinowaguma* SOS ツキノワグマ (*SOS Asiatic black bear*) (Azumane, 1993). This book is drawn from interviews with farmers, foresters, mountain villagers, hunters, bear-researchers, naturalists, conservationists and others who deal with bears or human-bear conflict in Iwate. Through numerous anecdotes and interviews, the book portrays the bear as victim of human-perpetrated habitat destruction, but at the same time the perpetrator of harm against the people who can least afford to be affected by pestilence: predominantly the elderly and small-scale upland farmer. Azumane also demonstrates how difficult it is to generalise about the positions and attitudes of the groups of people who find themselves embroiled in the 'bear problem': empathetic sentiment and a depth of understanding for the bear sometimes comes from quarters one might least expect it, such as from hunters.

Little research on human relations with the Asiatic black bear of Japan has been conducted by non-Japanese scholars. A book by Knight (2003), which explores human-wildlife relationships in Japan from an anthropological perspective, devotes a chapter to the Japanese relationship with both the brown bear of Hokkaidō and the Asiatic black bear. However, much of the work is based on secondary literature which is both dated and largely anecdotal, or based predominantly on opinion or supposition. Also, by not distinguishing between the Asiatic black bear of Honshū and the brown bear of Hokkaidō, the work is prone to generalisations which distort the nature of the human-bear relationship in Japan. Not only does the brown bear differ significantly from the black bear, in that it is significantly larger, and more predatory and carnivorous in nature, therefore posing a greater potential danger to humans, it also had a historical relationship with an entirely different race of people (the Ainu), within a different cultural context. A chapter by the same author in a book dealing with human-wildlife conflict is entitled 'Culling demons', and for the same reasons as those outlined above draws a rather distorted and over-simplified picture of the human-bear relationship in Japan.[43]

There has been a lack of literature on the bear not only in respect to its place in Japanese culture, but also in a scientific context. Scientific study of the Asiatic black bear in Japan has only been initiated in the last few decades. This is partially due to the elusive nature of the bear itself and the relatively steep topography and dense vegetation which comprises its habitat.[44] This has meant that recent technology such as telemetry, GIS and GPS has been pivotal to tracking and studying bears.[45] Due to the recent and relatively limited nature of research, even today certain aspects of the Asiatic black bear's life cycle and behaviour are not well known. For instance, the details of the process of mating,

fertilisation, and development and birth of cubs have not been ascertained through direct research but through a process of deduction based on research conducted on the Hokkaidō brown bear.[46] Even more fundamentally, the life-span of the bear is not known with any accuracy.[47] From the late 1990s there has been an increasing volume of scientific literature on different aspects of the bear's biology and ecology, but these articles tend to focus on specific aspects such as the effect of nut production on bear behaviour (e.g., Hashimoto, Kaji, Sawada and Takatsuki, 2003; Ishida, 1999).

Owing to the lack of rigorous scientific research on the bear, there is a lot of misinformation, even in the literature. In one book which presents mainly anecdotal information on the bear in Gifu Prefecture, some information of arguably dubious quality is presented. For instance, the book claims that after a sow gives birth to what is usually a male and female cub, the female cub separates from the sow in the autumn of the second year after its birth, while the male cub separates in the autumn of the third year, after *mating with the sow* (i.e., its mother).[48] As far as the author is aware, there is no scientific evidence of this actually occurring, though it is presented as if it is established fact. In another example, the *New Edition Encyclopedia of Fauna* (*Shinpen Nihon Dōbutsu Zukan* 新編日本動物図鑑), states that the bear uses tree platforms for sleeping, probably to avoid insects,[49] though this is not corroborated by the scientific literature. An even more fantastic claim is that the bear constructs a kind of mat on the ground from bark and branches, which it uses for sunbathing to dry the body out before hibernation (a process called *mihoshi* 身干し).[50] As folklore, these are intriguing ideas. However, in the literature cited above, there is no distinction presented between folklore and proven scientific facts, making it misleading to the reader.

3.4 Summary

This chapter has reviewed the literature relating to bear symbolism and ceremonialism worldwide, which is associated with many Boreal hunting cultures throughout the northern hemisphere. A number of parallels are evident between these Boreal bear hunting cultures and Japan's upland hunting culture, parallels which will be explored further in Chapter Eight. Human exploitation of bears for both entertainment and material goods was also examined. Some practices involving an extreme level of cruelty, such as bear baiting and bear fights, were practised in Europe and North America until the nineteenth century, and continue today in some parts of the world.

There is a paucity of literature concerning the Asiatic black bear's place in Japanese culture. The bear's lack of prominence in the historical literature is not an accurate reflection of its significance in Japan's culture as a whole: the bear was in fact highly revered and valued by upland hunting cultures of Japan, but this cultural heritage is not reflected in the literature which was written predominantly

by learned men living in the capital (a dimension which will be explored further in Chapters Eight and Nine).

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[1] Ward & Kynaston, (1995: 9) provide other examples of possible evidence of bear worship, but there is a degree of doubt about whether these examples are the result of human actions or natural causes.
[2] Campbell, 1984: 147.
[3] Leeming, 2003: 9.
[4] Leeming, 2003: 9.
[5] Sanders, 1993: 153
[6] Shepard & Sanders, 1985: 65–6; 112. The Vinca Culture spanned approximately 6000 to 3000 B.C., and was characterised by pottery-making, predominantly ceramic vases carved with decorative incisions, such as the bear-shaped vases noted.
[7] Hallowell, 1926: 148.
[8] Hallowell, 1926: 150.
[9] Hallowell, 1926: 152–3.
[10] Berres et al, 2004: 9.
[11] Hallowell, 1926: 18.
[12] Hallowell, 1926: 153.
[13] Hallowell, 1926: 154–5.
[14] Hallowell, 1926: 161.
[15] The diffusion of culture as people moved from Africa, through Eurasia and into North America is also supported by research in the field of genetic archaeology (Shreeve, 2006: 61–9).
[16] Berres et al, 2004: 29. A further point made by Berres et al is that the type of power recognised by a given culture and the way a power is conceptualised is a reflection of the environment, subsistence strategies, and the culture's particular world-view (Comeau (1996), Wallace (1966), as cited in Berres et al, 2004: 29). As an example of this they point to the fact that whereas Hallowell found that the bear cult was linked to hunting success among the northern Boreal hunting cultures, among the Iroquois people, who are agrarian, the healing power of the bear was more central to bear ceremonialism.
[17] Edsman, 1987: 87.
[18] Rockwell, 1991: 180–1.
[19] Rockwell, 1991: 181.
[20] Rockwell, 1991: 187–9; see also Sanders, 1993: 164–7.
[21] Edsman, 1987: 87.
[22] Campbell, 1984: 147.
[23] Inada, 1977: 288.
[24] Shepard & Sanders, 1985: 102.
[25] Ward & Kynaston, 1995: 155.
[26] Ward & Kynaston, 1995: 155.
[27] Bieder, 2005: 105; Ward & Kynaston, 1995: 155.
[28] Ames, 1993: 202, 204; Ward & Kynaston, 1995: 155.
[29] Ward & Kynaston, 1995: 156. Bieder, 2005: 105; see also 108–9 for graphic photographs of bear-baiting in Pakistan.
[30] Bieder, 2005: 106; Ward & Kynaston, 1995: 156.
[31] Ames, 1993: 205.
[32] Ames, 1993: 204–5; Ward & Kynaston, 1995: 156.
[33] Ward & Kynaston, 1995: 156.
[34] Mills, 1993: 178; Ward & Kynaston: 158.
[35] Mills, 1993: 177.
[36] China Bear Rescue, 2007; Mills, 1993: 180.
[37] Maita, 1998: 45–6.
[38] Batchelor, 1901; Watanabe, 1973: 73; Sjöberg, 1993: 77; Amano, 2003. It should be noted that the bear was not alone in being deified —other animals were also regarded as gods.
[39] Akino, 1999: 249.
[40] Traditionally *iyomante* were not held only for bears, but also for other animals such as foxes, raccoon dogs, wolves, deer, whales and fish owls (Utagawa, 1999: 257).
[41] Utagawa, 1999: 257. K*amui mosir* refers to the metaphysical world where spirits and ancestors dwell, which exists in contradistinction with the *Ainu mosir*, the physical world of earth.
[42] Sjöberg, 1993: 77.
[43] Knight, 2000b.

[44] Hazumi, 1999: 208
[45] Telemetry (the use of electronic apparatus to transmit data—usually position information—from a collar attached to the animal using radio signals) was first used for bear research in Japan in the late 1960s. Government-led research initiatives date back to 1980, when the Environment Agency trialled a survey tracking bear movements using telemetry equipment (Hazumi & Kitahara, 1994: 17).
[46] Likewise, it is not precisely known when, or in what circumstances, cubs separate from their mothers, except that it occurs in summer. There is also little known about variations in the timing of hibernation and behaviour over winter (Hazumi & Kitahara, 1994: 18).
[47] Azumane, 1993: 16.
[48] Ezaki, 1993b: 48; see also Yamazaki, 1990: 18.
[49] Uchida, 1984: 733.
[50] Takada (1993: 60–61) claims that this happens once the bear has built up enough body fat and is ready for hibernation, at which stage it expels the last remnants of food in its intestine, and then 'sun-bathes' in order to dry its body out. The first step is called *mikarashi* (body emptying). The present author has not been able to cite scientific research which confirms that these processes actually do take place.

Chapter Four: Background to wildlife conflict in Japan

4.1 Introduction

This chapter provides an overview of the environmental, social and economic background to the wildlife conflict issue in Japan. Wildlife conflict is particularly serious in the upland regions in forest margins areas, and therefore this chapter will explore the key factors that have led to a major change in the balance between humans and wildlife in these upland regions: namely, rural depopulation, forestry, and the development of upland areas for tourism, leisure and infrastructural purposes. This examination will provide a wider social and economic context to human-bear conflict and its management, which is explored in greater depth in the following chapter.

4.2 Geographical background

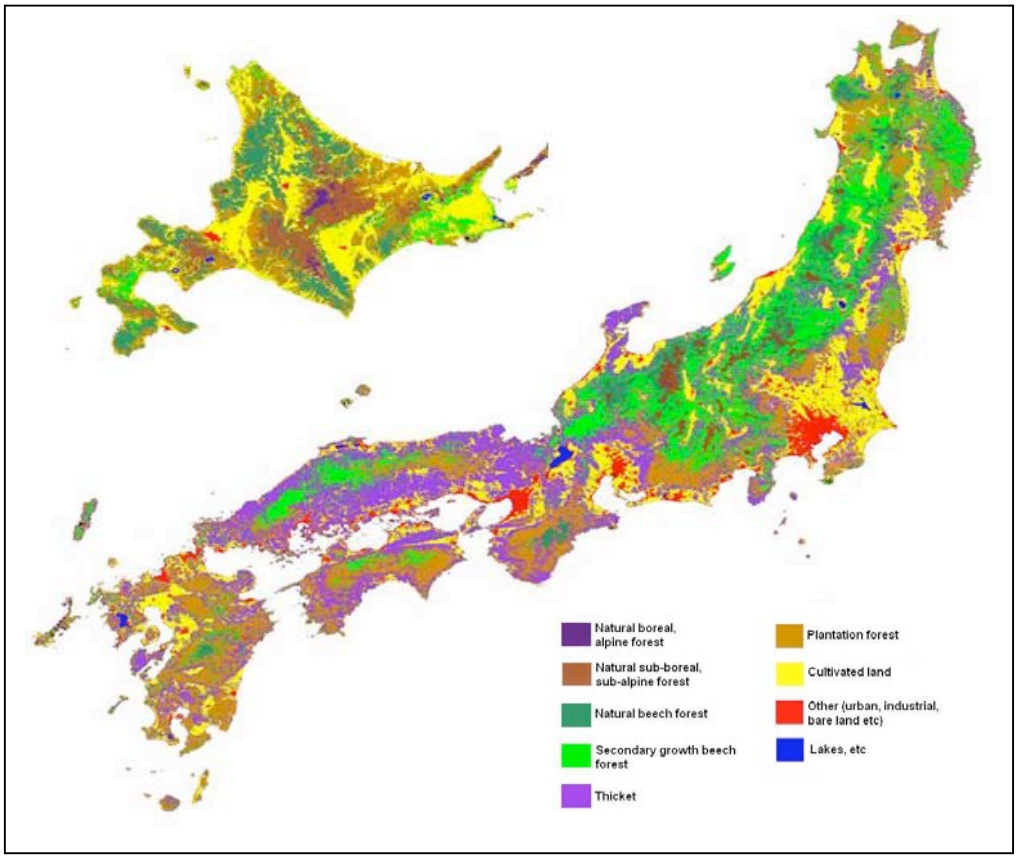
The archipelago of Japan forms an arc in the Pacific Ocean to the east of the Asian continent. The land comprises the four large islands of Honshū (the mainland), Hokkaidō, Kyūshū, and Shikoku, together with many smaller islands. Japan's total land area is about 378,000 square kilometres, slightly larger than Germany. About 75 per cent of Japan's land surface is mountainous, with a mountain chain running through each of the main islands (see Appendix 1 for a topographical map of Japan). Dense forest used to cover much of the land area, owing to the mountainous topography, volcanic soils, very high average annual rainfall and temperate climate. Japan's geographical isolation over the past twelve thousand years, together with its varied topography and climate, have supported a high level of biological diversity. About 200 mammal species have been identified in Japan, compared to 67 in Great Britain and Ireland, an area of approximately equal size. Over 700 bird species, including sub-species, have been recorded, again, approximately double the number found in Great Britain and Ireland.[1] Japan is therefore a land of exceptional diversity in terms of its topography, vegetation, and wildlife.

Owing to its topography, the human population of Japan is concentrated in the plains and basins, particularly in those of the Kantō and Kansai areas. Wildlife such as the bear, on the other hand, has predominantly been concentrated in the mountainous, forested regions. Thus, until the twentieth century, humans and larger wildlife species such as the wolf, bear, wild-boar and deer for the most part coexisted within their largely separate spheres. Nevertheless, wildlife pestilence was not an unknown phenomenon in pre-modern Japan. As Taguchi (2000) has shown in his research on the history of hunting in Japan, hunters were employed as 'pest-controllers' by the agricultural estates, particularly from the mid-seventeenth century onwards; a duty necessitated by the increasing incidence of wildlife pestilence as vast areas of land were developed, reclaimed and converted to farmland.[2] Some serious instances of monkey, deer and other wildlife pestilence have been

documented in the Edo Period (1615–1868) especially.[3] However, the problem was not of the epidemic proportions it is today. At that time, much of the forest environment, particularly in the upland areas, was still intact (albeit cut to some degree), and forest wildlife targeted crops generally not as a result of its displacement from its natural habitat, but simply because of the attractiveness of the crops as a food-source (in accordance with 'optimal foraging theory' noted in Chapter Two).[4] In contrast, in the decades following the Second World War, wildlife has been increasingly encroaching into human inhabited spheres. This is largely a consequence of increased development in the mountainous regions, and the large-scale cutting of indigenous forest and its replacement with coniferous plantation forest, which is unable to support the nutritional and ecological requirements of many species.

Today, while about 67 per cent of Japan's land area is forested, a large proportion of that—about 40 per cent—is coniferous plantation forest.[5] The remaining natural forest consists of subtropical forest (predominantly broadleaf) in the southern part of Honshū, Shikoku and Kyūshū, as well as the southern islands. Temperate forests are distributed mainly around Honshū, and are made up of broadleaf deciduous species, intermixed with conifers. Boreal forests are distributed in the highlands

Figure 2: Japan's vegetation zones



(Source: Tokyo University of Information Sciences)

of Honshū and in Hokkaidō and are dominated by conifers such as fir and spruce (see Figure 2).[6] The current forest distribution has a direct impact on the distribution of bears, as will be seen in the next Chapter.

The development of forestry, especially in the post-war years, and the impact of construction and tourist activities on the forested mountains will be explored further below. Before moving to that discussion, the key social factors which have led to a change in the balance between humans and wildlife in upland areas will be explored.

4.3 Japan's changing population distribution and demography

With an average of about 340 people per square kilometre, Japan has one of the highest population densities in the world.[7] But in fact, even this figure does not convey an accurate picture, as the vast majority of Japan's population is concentrated in a relatively small number of urban agglomerations: according to the 2000 population census, just under 100 million of Japan's approximately 127 million population live in cities (see Figure 3).[8] An almost continuous urban belt has developed stretching from northern Kyūshū in the southwest, to Tōkyō in the northeast—a 'megalopolis' comprising approximately 60 per cent of the population.[9] One corollary of this advanced urbanisation has been the depopulation of much of the Japanese countryside. In 2000, only about four per cent of Japanese households were classified as farming households, and the majority of these were earning a significant part of their income in non-agricultural based work: according to 2004 statistics, only 20 per cent of the two million households engaged in farming nationally were full-time farmers. The remaining 80 per cent were classed as *kengyō nōka* 兼業農家, or part-time farmers, earning supplementary income from off-farm work. [10]

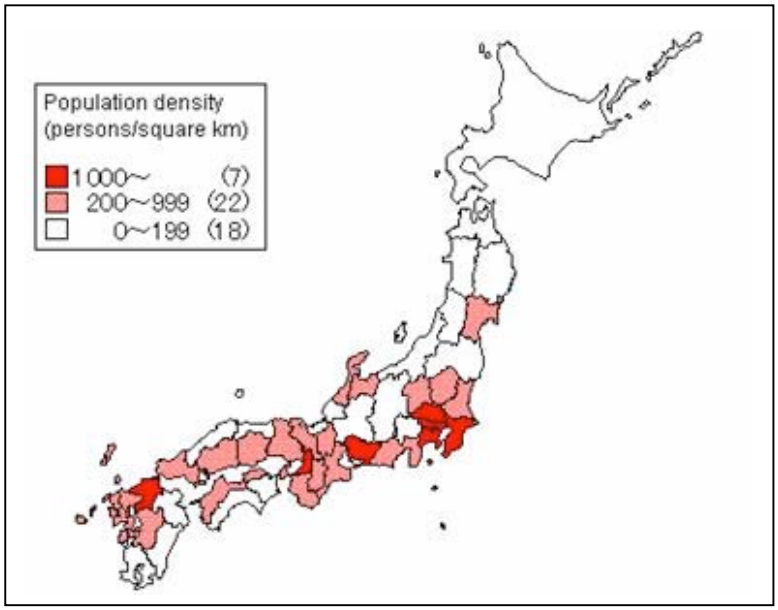


Figure 3: Prefectural based population densities (2000).
Source: Japan Statistics Bureau.

The government has implemented a number of policies designed to make life in rural areas more attractive both to existing residents and to potential returning migrants, but with little success.[11] For

example, in 1970, the Japanese government passed what is generally known as the *kasohō* 過疎法, or 'depopulation law', a piece of legislation that attempted to address the problem of population decline by providing extra government resources for designated *kaso chiiki* 過疎地域 or 'depopulated areas'.[12] However, this has done little to stem the tide of out-migration. Depopulated municipalities account for one-third of all Japanese municipalities, and cover one-half of the national land area. Over the long term, some rural communities may die out entirely (as many already have) as the younger generations migrate to the cities, leaving populations which are disproportionately elderly.[13] Rural depopulation is an important factor in wildlife pestilence, because as Knight (2003) states: 'Remoter, upstream villages tend to be more depopulated and more aged than downstream settlements. This is particularly significant in relation to wildlife pestilence, as it tends to disproportionately affect these remoter villages'.[14] A number of mechanisms are at work making these remoter upland villages more vulnerable to wildlife pestilence from animals such as the bear: with advanced depopulation, and particularly the departure of younger generations, there is less activity in villages than in the past; many villages have become largely silent. This means wildlife is less wary of human settlements, particularly in light of the break-down of the the *satoyama* 'buffer zone' between the village and the prefecture. Owing to a depletion of labour within villages, villagers are no longer able to keep these outer fields and woods (*satoyama*) in check: the cutting of grass and scrub, the removing of fruit from trees, and other maintenance activity has become neglected. This makes this area around villages more attractive to animals such as bears, both because it provides a place in which they can conceal themselves, and also because it provides a source of high-energy foods, such as persimmons and chestnuts. At the same time, when pestilence or encounters do occur, aging villagers are less able to defend themselves or take preventative measures (both from a physical and financial perspective). These issues will be explored in greater depth as they specifically relate to the bear in the following chapter.

Administrative changes, concomitant with Japan's changing population distribution, are also highly relevant to the wildlife issue in Japan. Japan is divided into 43 *ken* (prefectures), one *to* (metropolis), one *dō* (territory), and two *fu* (urban prefectures). Prefectures are divided into *gun* (counties), *shi* (cities), *machi/chō* (towns), and *mura/son* (villages).[15] Against the background of a rapidly aging population, a declining birth-rate and the depletion of national tax revenues, central government has been pursuing a decentralisation policy whereby prefectural and municipal governments are to become more financially and administratively independent of central government. As part of this policy, in 1999 the government initiated a restructuring programme which involves the consolidation of smaller municipal governments into larger bodies. By March 2005, the number of municipalities in Japan had been reduced from 3,229 in 1999, to 2,521,[16] and by 1st August, 2006, to 1,819.[17] The goal was set to reduce the number still further to 1,812 by 12th March, 2007.[18] This pursuit of

decentralisation has had a major impact on wildlife management policy and practice, because central government has transferred this responsibility to prefectural governments, which are generally poorly equipped to fulfil this function. This issue will be further examined in Chapter Six.

4.4 The effect of forestry on the environment and rural society

An economic sector which has had a significant impact on both rural society and bear habitat in the post-war years is forestry. The forest has long been an important source of resources and livelihood for upland communities. Before the advent of modern plantation forestry, Japan's natural forests were used as a source of fuel wood and timber. Not only the 'forest proper', but also the *satoyama* forest was traditionally a source of fuel wood and charcoal, green fertiliser for crops, and foods such as mushrooms, bamboo shoots, nuts and edible plants. Changes in fuel sources have also been a driver in changes in forest use. Since the 1950s, when charcoal and fuel wood were replaced by modern forms of energy such as electricity, oil, and gas, forestry production was switched from the hardwood trees suited to the production of charcoal to softwood timber species to supply housing, construction, paper mills and civil engineering markets.[19]

However, the use of forests and the nature of forestry was to change dramatically in the twentieth century. As Japan stepped up its military activities during the pre-war and wartime periods, forests were exhaustively logged to provide timber for the war effort.[20] This high level of felling had major environmental consequences: causing landslides and extensive flooding in many downstream districts of Japan, and transforming much of Japan's forested countryside into an expanse of scarred and denuded hill slopes. It also left Japan with a serious timber shortage. A nation-wide reforestation movement was launched by the government in the post-war years to restore tree cover to bare mountain-sides and to further replace 'unproductive' and 'low-quality' natural broadleaf forest with coniferous forest.[21] The slogan for this post-war forestry effort reflected the single-mindedness of the policy: *kakudai zōrin, daikibo zōrin* 拡大造林、大規模造林 'expanded plantation forestry, large-scale plantation forestry'—a policy which resulted in large areas of mature broadleaf forest and other areas of natural but 'unproductive' forest being cut and replaced with coniferous species such as Japanese cypress (*Chamaecparis obtusa,* or *hinoki* in Japanese) and Japanese cedar (*Cryptomeria japonica, sugi* in Japanese).[22] This policy was further underpinned by the introduction of a self-funding financial system for the Forestry Agency in 1947, which meant that the Forestry Agency's focus was on maximizing profit above all else (including environmental considerations).[23]

The objective of this intensive programme of reafforestation was self-sufficiency in timber supplies, but this was not to eventuate: as Japan experienced shortages of timber in the course of its post-war recovery, it filled the gap between demand and domestic supply by importing large quantities of timber from Southeast Asia and other parts of the world, especially from the 1960s onwards. In

subsequent decades the scale of Japanese timber imports has increased enormously: in 1965 imported timber accounted for only 13.3 per cent of timber consumed in Japan, but by 2003, imported timber accounted for approximately 80 per cent.[24] The effect of the importation of large volumes of timber was to displace home-grown timber from the market, depress domestic forestry, and ultimately, to lead to the neglect of the forests themselves. This neglect of forest has been further exacerbated by a shortage of silvicultural workers, a consequence of the general trend of rural out-migration, and the concomitant increase in the cost of labour. As is the case with farming, silvicultural work has become less attractive to younger generations of workers, given its physically demanding nature and low wages comparative to the secondary and tertiary sectors.[25] Owing to the cost and scarcity of forestry labour, basic silvicultural tasks such as pruning and thinning are in many cases not being carried out sufficiently to produce high quality timber. The timber harvested from these forests therefore tends to be low-quality, knotty timber, and as a consequence, is less likely to be harvested, as its poor quality is unlikely to make the returns necessary to cover the costs of harvesting.[26]

It was particularly the foresters and farmers in upland regions who, following the government's encouragement in the 1950s, 1960s and 1970s, converted their land to coniferous plantations, and it is also these communities which have been disproportionately affected by the subsequent decline of the forestry sector.[27] In his research in Hongū (a rural area in Southern Kinki), Knight (2003) found that the foresters in upland communities tended to blame the government for this decline of plantation forestry. They believed that the Japanese government, which in previous decades encouraged foresters to plant their land with coniferous plantation species, has a moral responsibility to support forestry families today—one which it has failed to honour.[28]

Plantation forestry practices also have environmental impacts. Large-scale logging disrupts the original pattern of rainfall run-off and can lead to downstream floods, landslides and river silting. Plantation forestry also acts to inhibit other forms of life: the growth of grass and undergrowth, and by extension the creatures which live on these plants. This has been particularly accentuated in recent years due to the neglect of thinning. Additionally, forestry destabilises the habitat conditions of forest fauna because of its cyclical nature. The effect of the sequence of clear-felling forest and then reafforesting is first a significant increase in food supply for forest herbivores owing to the growth of plants on the forest floor (referred to in Japanese as *rinryokukōka* 林緑効果), and then, some years later, a sudden decrease in the food supply when the plantation canopy forms and undergrowth is shaded out. As a result, wild herbivore numbers multiply in the earlier phase, but face a food shortage in the later phase. The 'surplus' animals respond by feeding elsewhere, whether in other younger plantations or on village farmland.[29] For bears, and to a lesser extent, many other animals, the major impact of post-war plantation forestry has been the destruction of mixed natural forest containing nut-bearing (mast) trees such as beech, oak and chestnut trees, which are a prime source of nutrition.

The construction of forestry roads has also had an impact on forest-dwelling wildlife and its habitat. In the last decades, forestry roads have been constructed through much of the mountainous interior of Japan. For example, Knight reports that since 1970, the length of forestry roads in Hongū has more than doubled.[30] The building of forestry roads has not simply been to facilitate forestry: Hatakeyama (2005) discusses how the building of forestry roads has been used as a tool to 'lift' local upland economies from economic stagnation, by attracting subsidies and financial assistance for their development; by providing employment; and as a form of 'compensation' following natural disasters or droughts.[31] However, the expanding network of forestry roads has taken a toll on the natural forest environment and its wildlife: they act to fragment habitat and inhibit the movement of wildlife, and by providing better accessibility to previously remote areas of forest, human activity has encroached further into wildlife habitat. (Some experts suggest that roads do not act as a barrier to the movement of wildlife such as bears, but it is undeniable that wildlife crossing roads are susceptible to road-kill.)[32]

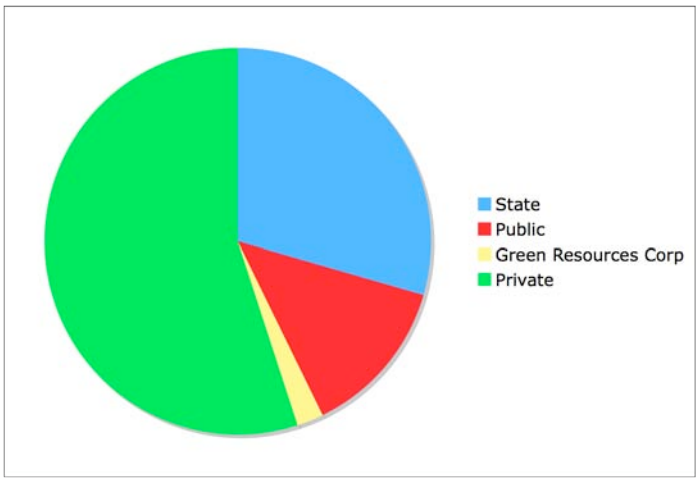


Figure 4: Forest ownership in Japan (2000)
(Source: Japan Statistics Bureau, 2005)

There are three main categories of forestry ownership in Japan: privately owned forests (*shiyūrin* 私有林); publicly owned forests (i.e., under the jurisdiction of prefectures or municipalities) (*kōyūrin* 公有林); and state owned forests (*kokuyūrin* 国有林). A relatively small portion is also owned by what is known as the Japan Green Resources Corporation (*Ryokushigen Kōdan* 緑資源公団), a public corporation (see Figure 4). The category of 'publicly owned' forests is the most complex, and includes forestry managed by prefectural governments, cities, towns, villages and hamlets. Ownership is a significant factor when considering wildlife and habitat conservation and management issues, particularly in relation to natural forests. Only about 30 per cent of all forests are state-owned, while 55 per cent are owned privately, with the remaining fifteen per cent are under the jurisdiction of prefectural or municipal governments or the Japan Green Resources Corporation.[33] The composition of forest ownership has obvious implications for wildlife management in natural forest habitats, which comprise just over half of forest-land: even if more effective measures for managing natural forests in ways more conducive to wildlife conservation were implemented by central government, these would be likely to be limited to state and 'public' forest. (As the case of national parks, examined in Chapter Six, demonstrates, it is problematic for governments to force private land

owners to restrict the use of their land for wildlife conservation purposes.) Thus, the participation and cooperation of private landowners in habitat preservation and wildlife conservation is essential if wildlife conservation measures are to be successful.

In recent decades, as forestry has become less profitable, forested land has been increasingly converted to land for other uses, such as quarrying, road-construction, agriculture, and sites for building of resort or leisure facilities, golf courses, housing development or industrial areas. According to Forestry Agency statistics, permits issued for conversion of forestry land peaked at 1,735 in 1982, and though declining since, have remained steady. The land-use to which forested land is converted has undergone change concomitant with developments in the economy. In 1991, 59 per cent of the 924 forest conversion permits issued were for the conversion to golf courses. However, following the recession of the early 1990s, the construction of golf courses slowed, and was rapidly overtaken by conversion to quarrying sites: by 1998, golf course conversions had dropped to fifteen per cent, while permits for quarry conversions had grown to 44 per cent.[34]

4.5 The development of upland areas for tourism, leisure and infrastructural facilities

Another sector of the economy which has had an increasing impact on natural forests and wildlife is tourism: in particular, the construction of tourist and leisure facilities in upland and mountainous areas. This became marked in the 1980s when the government sought to bolster rural economies as the national economy began to slow. In 1987 the National Resort Law (*Sōgō hoyū chiiki seibihō* 総合保養地域整備法, more commonly known as the *Rizōtohō* リゾート法) was enacted as part of the government's plan to encourage the development of the tourism sector, and this was in turn intended to revitalise both the private sector and rural Japan, in which the two core sectors—agriculture and forestry—were in chronic and steady decline.[35] The National Resort Law was enacted in anticipation of the advent of an 'age of leisure', and sought to promote the development of resort and leisure facilities nation-wide through the loosening of regulations governing construction and development.[36] As part of this 'resort boom', golf courses, ski resorts, spa resorts and hotels were developed, and expressways and other roading infrastructure were constructed across Japan to facilitate access for tourist traffic.

In the case of infrastructural works, the Environmental Impact Assessment Law enacted in 1997 requires that any project carried out by central government is preceded by an environmental assessment report, but this requirement only applies to projects carried out by central government—it does not apply to private companies or prefectural or municipal governments. In addition to the law's application being very narrow, the law does not necessitate that the developer takes action to mitigate any impacts identified, further weakening its effect.[37]

Of particular significance is that even national parks, of which there are twenty-eight throughout Japan, are not immune to the development of resorts, tourist roads and other tourist facilities within their boundaries. In fact, tourist development in national parks is explicitly encouraged by the Resort Law. Indeed, clause 15 of the law specifically provides for the development of national forests as resort areas.[38] As a result, a significant proportion of natural parklands are heavily developed with roads, houses, golf courses and resort facilities.[39]

The legislative framework by which national parks and other wildlife habitats are managed will be examined further in the Chapter Six, in addition to the legislation regulating the management and conservation of wildlife itself. In the next chapter, the factors leading specifically to human-bear conflict in Japan will be examined.

4.6 Conclusions

This chapter has provided background to the wildlife conflict issue in Japan. Wildlife conflict involving forest-dwelling animals such as bears, wild-boar, monkeys and deer is concentrated in forest-margin areas, namely, in upland Japan. Human-wildlife conflict of some nature is likely to have existed in Japan for as long as humans have occupied the archipelago, but it has not become a major social and economic issue until the last decades. Human-wildlife conflict has developed to the serious problem that it is today due to several key factors: the destruction of large areas of upland forest through deforestation and afforestation with plantation forest, and the development of mountain regions with roads, leisure facilities and other construction. In addition, the depopulation of upland communities means that wildlife encroachment is no longer adequately kept in check by these communities, particularly as the 'buffer zone' between upland settlements and the 'forest proper' becomes neglected.

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[1] Environment Agency, 2000: vol. 1, 285; Kellert, 1991: 298.
[2] Taguchi, 2000: 72.
[3] Maruyama, 2006: 155–6. For instances of wild boar and deer pestilence during the Edo Period, see Walker (2005a: 163–87). See also Walker (2005b: 102–106) for instances of livestock (particularly horse) depredation by wolves from as early as A.D. 967.
[4] While the forest was extensively utilised in pre-modern Japan for construction, boat-building, fuel wood and so on, and was exploited heavily in the Kinai basin, Tōkai, Kantō and Inland Sea regions, much upland forest-land remained largely intact outside of these highly populated areas until the mid-Edo Period (1700s) (Totman, 1989: 9–11; 34–80).
[5] Statistics Bureau of Japan, 2006: 19, 255.
[6] Bowring & Kornicki, 1993: 13–14.
[7] Statistics Bureau of Japan, 2006: 2, 19.
[8] Statistics Bureau of Japan, 2006: 38. A city in Japan normally has a population in excess of 30,000 (Bowring & Kornicki, 1993: 28).
[9] Karan & Stapleton, 1997: 23–4.
[10] Statistics Bureau of Japan, 2006: 57, 231.
[11] Bowring & Kornicki, 1993: 31.
[12] Knight, 2003: 20; Itō, 1985: vol. 5, 325. The law's full name in Japanese is *Kasochiiki taisaku kinkyū secchihō* 過疎地域対策緊急設置法.
[13] Bowring & Kornicki, 1993: 30–31. See also Palmer, 1984, for an in-depth study of rural settlements which have experienced the problems associated with rural depopulation.

[14] Knight, 2003: 20–21.
[15] Villages are often classified according to three categories: *nōson* (farming villages), *sanson* (mountain villages), and *gyoson* (fishing villages), but these categories have no effect on administrative function. Similiarly, the *gun* have no administrative function, but are groups of rural municipalities that are used for postal purposes.
[16] Asia-Pacific Perspectives, February 2006: 35.
[17] Fukushima Minpō, October 19, 2006.
[18] Fukushima Minpō, October 19, 2006.
[19] Knight, 2003: 31; see also Maita, 1998: 38.
[20] Knight, 2003: 32; Hazumi, 1999: 108.
[21] Maita, 1998: 40. Encouragement for private-landowners to convert their land to coniferous forestry took a number of forms, such as subsidies, guidance and advice. Some of the 'guidance' was effectively propaganda: one plantation forestry manual published by the government in the 1950s and 1960s stated: 'broadleaf forest feels bad [*kimochi ga warui*]' and 'broadleaf trees are low-quality' (Maita, 1998: 40).
[22] Maita, 1998, 40; Hatakeyama, 2005: 66.
[23] The Forestry Agency has been a self-funding agency since 1947. Critics suggest that this meant that the foremost consideration has been profits generated from logging, with little regard for environmental impacts or considerations (Natori, 1997: 561). Natori documents an example of how this 'self-funding' system affects the natural environment: the logging of the Shiretoko National Park in Hokkaidō. It was well documented that the area was habitat to seriously threatened species such as Blakiston's fish-owl, the white-tailed eagle and the Pryer's woodpecker. In spite of nation-wide opposition, the Forestry Agency proceeded with logging in 1987. Because rigorous biological diversity surveys were not conducted, it is unclear how much ecological damage resulted. At the time, the Forestry Agency's deficit stood at more than 1.5 trillion yen (Japan Lawyer's Association (1991), as cited in Natori, 1997: 558) and the logging project at Shiretoko was seen as an attempt to reduce this deficit.
[24] Japan Overseas Forestry Consultant Association (OFCA) (1996), cited in Knight, 2003: 45; Statistics Bureau of Japan, 2006: 258. At the same time, the Forestry Agency was sinking deeper and deeper into debt—by 1988 it had a cumulative deficit of 500 billion yen and a long term debt of 1.9 trillion (McCormack, 1996: 86).
[25] In recent decades, there has been a sharp decline in the number of people working in the forestry industry in Japan. In 1960, there were 400,000 forest labourers in Japan (JOFCA (1996), cited in Knight, 2003: 34), but the number of full–time forestry workers has declined steadily since then: to 135,000 in 1970, 77,000 in 1990 and fewer than 45,000 in 2000 (Statistics Bureau of Japan, 1990: 176; Statistics Bureau of Japan, 2006: 253).
[26] These neglected forests are sometimes referred to disparagingly as *moyashiyama* 萌し山 or 'bean-sprout forest' (Knight, 2003: 35).
[27] Most of the fields abandoned in upland areas under the 'depopulation law' were either left to regenerate naturally or were planted in coniferous species, so this applies to the 1970s also (Palmer, E., personal communication, February 12, 2006).
[28] Knight, 2003: 35.
[29] Knight, 2003: 35.
[30] Knight, 3003: 36.
[31] Hatakeyama, 2005: 106. As illustrated by this example, because habitat destruction/conservation, development, social welfare and economic aid are so inextricably intertwined, it is not possible to view nature conservation issues purely from a utilitarian 'common sense' perspective—they can be highly emotional, with stakeholders who feel, and arguably are, economically and socially vulnerable. This is equally applicable in most, if not all societies. However, in Japan's case, development projects have an established history of being used, quite openly, and not always successfully, as a panacea for economic ills.
[32] Ōi, 2004: 214.
[33] Statistics Bureau of Japan, 2006: 252.
[34] Hatakeyama, 2005: 92.
[35] McCormack, 1996: 86.
[36] Hatakeyama, 2005: 93.
[37] For a fuller discussion of this law, see Knight, 2004: 88–9.
[38] Yoshida, 2001: 25; McCormack, 1996: 87–88.
[39] McGill, 1992.

Chapter Five: The Asiatic black bear of Japan—its biology, ecology, distribution and status

5.1 Introduction

This chapter will provide an outline of the population status and distribution of the Asiatic black bear both in Japan and worldwide, provide an overview of the bear's biology and ecology, and discuss the main factors impacting its survival in Japan. It will further provide an overview of two major aspects of contemporary human-bear interaction in Japan: human-bear conflict and bears held in captivity.

5.2 Worldwide distribution and status of Asiatic black bears

The Asiatic black bear of Japan (*Ursus thibetanus (japonicus)*); sometimes known as *Selenarctos thibetanus (japonicus*), is a subspecies of the continental species *Ursus thibetanus*. It is thought to have crossed from the Eurasian continent sometime before the Pleistocene period (approximately 1.8 million to 10,000 years ago), when a land-bridge connected Japan to the Eurasian continent. The species' distribution is now divided into two separate regions: in the east, it is found in Korea, China, Mongolia and parts of the Russian Federation. Further west it inhabits a region stretching from Iran in the west to Taiwan in the east and Malaysia in the south (see Figure 5). It is generally thought to prefer forested hills and mountains and the tropical moist forest below alpine elevations.[1]

The population status of the Asiatic black bear is uncertain throughout much of its range outside the dense forests in Laos and Burma and in the eastern Soviet Union.[2] Due to the high nutritional

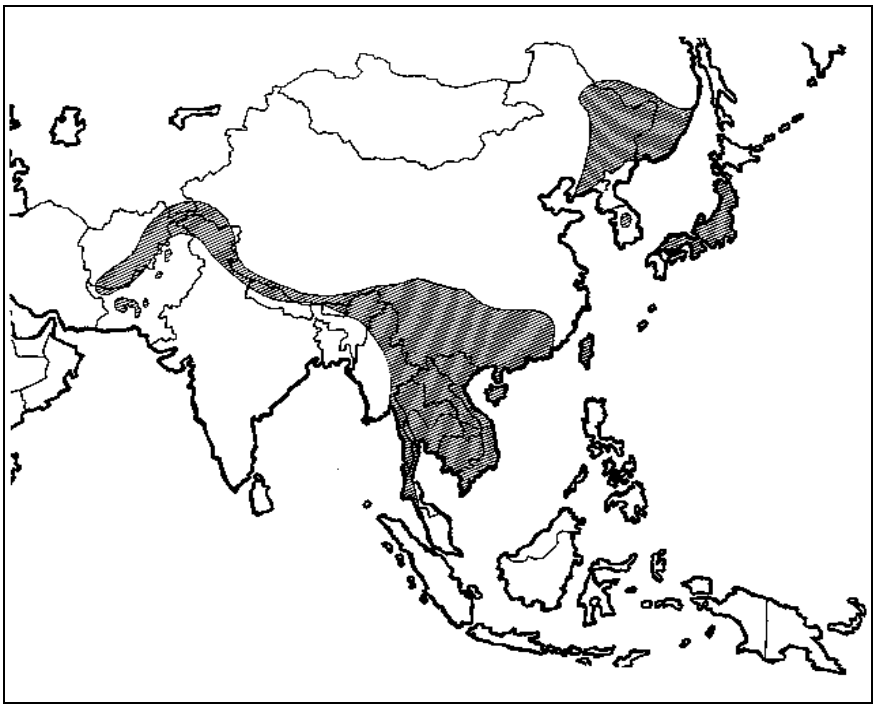


Figure 5: World distribution of Asiatic Black Bears (*Ursus thibetanus*) (Source: The International Association for Bear Research and Management)

requirements necessary to feed a large body, it requires substantial areas of habitat. In studies conducted in Tangjiahe, China, it has been estimated that an adult male needs at least 37 km² to sustain itself. Therefore, forests can only support bears at low densities, estimated at one bear per seven to eight km².[3] (Ranges for bears in Japan are discussed below.) The main threat to the bear's survival worldwide is habitat loss and degradation, but ongoing trade in bear parts, particularly in East Asia, is also a significant threat. The trade in bear parts affects this bear species more than others because it is the favoured species for traditional medicine and cuisine in East Asia and it is the most readily exploitable species in China, Japan, and Korea, where medicinal use of bear parts is prevalent.[4] According to Servheen (1989), a bear biologist active in the conservation of bears world-wide, without controls on trade and harvesting rates, and urgent protection of habitat, the species is likely to become extinct throughout most of its current range in the near future.[5]

5.3 Physical characteristics, diet and life-cycle of *Ursus thibetanus (japonicus)*

Asiatic black bears have black fur (turning dark-brown in some individuals as they age) usually with a distinctive white patch on the chest that is often crescent-shaped. The marking is reminiscent of a lunar crescent (see Figure 6), and its Japanese name *tsukinowaguma* 月の輪熊 means 'crescent moon bear'.[6] The average weight of the Japanese black bear ranges between 60 and 120 kg in the adult male and 40 to 100 kg in the adult female. The average body length is 110–140 cm.[7] It is smaller than its 'cousin', the American black bear (*Ursus americanus*), but it is otherwise similar in appearance and shares some behavioural characteristics.[8]

Figure 6: The Asiatic black bear (source: Harriet Corbett, Rox Graphics)

The roaming range of the bear in Japan varies between 10 and 250 km² for a male bear and 4 and 100 km² for a female. There is significant variation from year to year, depending on the availability of food.[9] When food is scarce, bears will expand their range in order to find adequate food, particularly in the months leading up to hibernation.[10] This is particularly the case when mast trees have a poor season. Some bears will then extend their range into human-inhabited areas, which brings them into conflict with humans.

The bear is omnivorous, but vegetable matter constitutes the predominant part of its diet. Grasses, sedges, herbs and buds are preferred foods in spring, and berries and nuts in summer and autumn, when it needs to eat high-energy foods in order to build up body fat for the hibernation period.[11] What

animal matter the bear does eat is derived predominantly from small animals such as frogs, crabs, ants and other insects.[12] The bear will eat carrion, such as that of wild rabbits and serow (*Capricornis crispus*, or *kamoshika* in Japanese), but it is rare for the bear to hunt animals actively.[13] Like the panda, the bear has evolved from a carnivore and its digestive system has not completely adapted to its largely vegetarian diet. It is therefore not efficient in its absorption of vegetable matter, and to sustain itself the bear needs to eat large volumes of food, particularly leading up to the hibernation period.[14] One notable and yet unexplained characteristic of the bear's dietary behaviour is its habit of tearing off the bark of trees (usually conifers) and gnawing at the exposed sapwood (see Figure 10). Worldwide, this behaviour has only been observed in the Asiatic black bear and the American black bear. [15]

Bears usually hibernate over winter, leaving the den between April and May. Female bears with cubs born over the winter are generally the last to leave their dens. Their eventual emergence tends to coincide with the budding of beech trees and other plants in the area in which the den is located.[16] It is thought that this timing allows the cub(s) sufficient time to learn to walk, and also coincides with more dense spring foliage which may serve to protect the cub(s) from potential predators.[17] In the spring, the (adult) bear eats the new leaves of trees, shrubs and grasses; acorns and other nuts on the ground from the previous autumn; angelica and other plants from the dropwort family; the flowers of plants such as *kobushi* (*Magnolia kobus*) and *tamushiba* (*Magnolia salicifolia*), and, in areas of high snow fall, beech buds (both flower and leaf buds). When the budding period has finished, the bear also eats bamboo shoots. During spring it is thought that the bear's level of activity and area of movement is fairly limited. As spring growth of flora advances, the bear climbs to increasingly high altitudes to feed on new growth.[18]

In the summer, the bear's level of activity and the area of movement increases. During this period, the bear eats insects (which become more active during the summer); buds from the *Rosaceae* family of plants; and grasses. Summer is both the bear's mating season, and the time that cubs born in previous years separate from their mothers. Little is known about the process and period of nurturance and separation, but it is thought that cub(s) hibernate with the sow through the winter following the year in which they were born, and separate from the sow in the following summer.[19]

Figure 7: Beech nuts, an important part of the bear's diet during the autumn months (Photo: H. Suzuki)

In the autumn months, the bear becomes intent on eating a large amount of food in order to build up fat reserves for the hibernation period. This period of hyperphagia coincides with the period when mast trees bear nuts, which are an important source of carbohydrates for the bear.[20] These nut-bearing

trees include *Fagus* (beech, or *buna* in Japanese) (see Figure 7) and various species of *Quercus* (oak, or *kashi* in Japanese). During these autumn months, the bear's area of movement varies according to the availability of food.[21] As winter approaches, bears become increasingly single-minded about eating and may even become oblivious to danger—i.e., the presence of humans. Hunters report that bears are easier to hunt during this period due to their distractedness.[22]

Beechnuts do not mature until October, but recent research has shown that in years of poor masts, bears begin to appear outside their normal range (i.e. the usual range in a year of average or good masts) as early as July or August in their search for food. Researchers speculate that this is due to the fact that beech flowers are indicative of mast rates in the autumn. Thus, the number of flowers in the summer becomes a signal to the bear of the availability of its most important food source in the coming months, and triggers it to take compensatory measures by expanding its range.[23]

Whereas the Asiatic black bear mates in summer, like other bear species, there is a delayed implantation of the embryo in the uterus. This means that after copulation, the fertilised egg floats freely in the uterus until late autumn or early winter, when the female bear finds a den for the winter. Once the implantation occurs, the growth of the foetus takes about 60 days. This delayed implantation allows the birth of the cub(s) to coincide with the bear's hibernation period, which means the birth can occur in relative safety. It is also thought that the delay allows for the gestation to abort if the pregnant sow does not build up enough body fat to assure both her own survival and that of her cub(s). This is corroborated by recent research which suggests that birth rates are higher in years which follow a good harvest of mast trees.[24]

Bears usually begin their hibernation between mid-November and mid-December. It is assumed that variations in timing are due to factors such as weather and nutritional levels, but there has not been any scientific verification of this.[25] They den in hollow trees, under large rocks, in holes in the ground (often created by a fallen tree), small caves, and cavities between the raised roots of large trees.[26] In areas with little snow, bears tend to prefer steep ravines, possibly to avoid contact with humans, particularly hunters and their dogs.[27] Bears generally do not eat or even drink during the hibernation period.[28]

Cubs are born in the den during the hibernation period. Little is known about the birth and raising of cubs—in fact even the timing of the birth is not known precisely, though it is thought that it is generally mid- to late February.[29] At birth, the cub is only about 200–400 grams, a mere one per cent of its mother's weight, and its eyes are closed for the first week. [30] It is thought that bears usually have two cubs at one time, one male and one female, but it is also known for a bear to have only one cub, or to have triplets.[31]

One characteristic behaviour of this bear species is its habit of making 'seats', resembling large birds nests, in the branches of trees in which it feeds. These are most commonly referred to as *kumadana* 熊棚 by upland Japanese, meaning literally, 'bear shelves' (see Figure 8). The bear makes these seats predominantly in the autumn, in mast trees such as *konara* (*Quercus serrata*) and *mizunara* (*Quercus crispula*), (both types of oak), *kuri* (*Castanea crenata*, chestnut), *mizuki* (*Swida controversa*, or dogwood) and beech trees. It appears that these 'seats' are made when the bear feeds on the nuts in these trees: it breaks off branches one at a time, carefully removes and eats the nuts, and then places the finished branch under its body, to gradually build up a platform.[32] There is common consensus that bears use these 'seats' for eating, but it has also been claimed that the seats are built to avoid insects and for resting, as noted in Chapter Three.[33] However, this claim has not been verified by research, and as Watanabe (1984) points out, if this were the case, the 'nests' would be expected to be found in all types of large trees, rather than just mast trees.[34]

Figure 8: A *kumadana* under winter snow. (Source: M. Fitz-Earle)

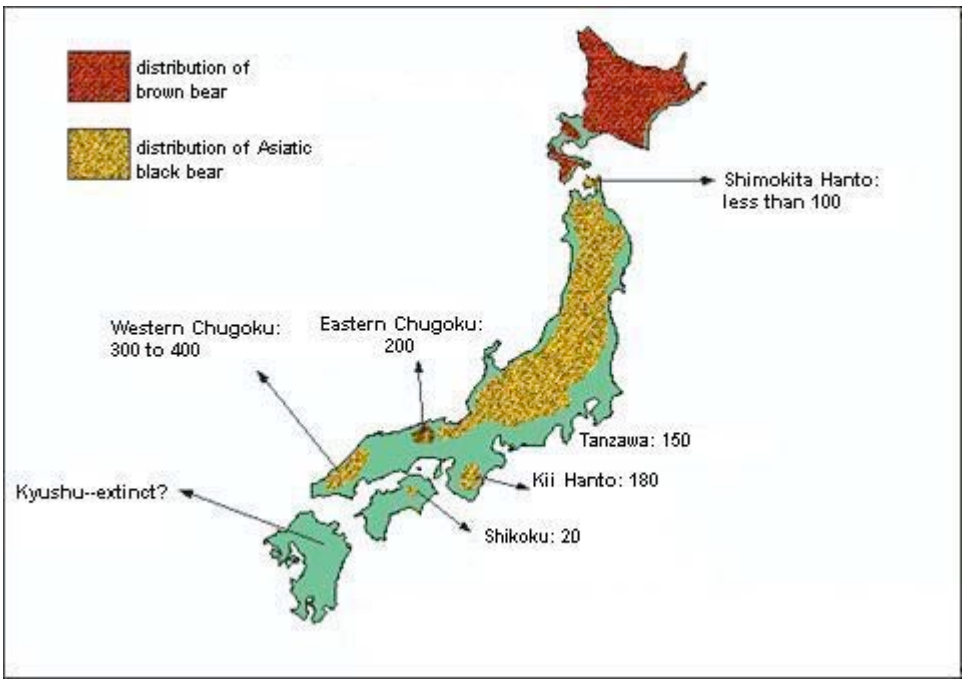
5.4 Distribution and status in Japan

In the early 1900s, the bear was distributed throughout high subalpine conifer forests (1,500–2,300 metres altitude), cool temperate forests (500–1,500 metres altitude), and warm temperate forests (below 500 metres altitude) throughout Honshū, Shikoku and Kyūshū islands, and its mountainous habitat was largely unaffected by human interference. However, human disturbance of many bear habitats became marked from the 1940s, mainly in the form of increased forestry activity.[35] As a consequence, this range has dramatically narrowed and bears are now largely confined to elevated forests of 500 metres and above.[36] The bear is now found in greater numbers in the mountains of central and north-eastern Japan than in the relatively low mountain ranges of western Japan, and its distribution largely coincides with the distribution of beech forest (see Figure 2 in the previous chapter).[37]

The current national population of Asiatic black bear is estimated to be between 10,000 and 15,000, though this may need to be reviewed, subsequent to the heavy cull in 2006.[38] As of 1995, seven local populations of black bears were designated as endangered according to the Red Data List compiled by the Ministry of the Environment.[39] These were in Kyūshū, Shikoku, West-Chūgoku, East-Chūgoku and the Kii areas, and two small isolated populations in Tanzawa (Kagoshima Prefecture) and

Shimokita (Aomori Prefecture) (See Figure 9).[40] In Kyūshū, the bear is now thought to be extinct; in Shikoku, the bear numbers fewer than 30 and its imminent extinction in the wild is almost certain. In other areas, particularly Chūgoku, bear populations are becoming increasingly small and isolated. As a result, some conservationists and researchers argue that other—if not all populations—should be listed as endangered.

Figure 9: Distribution of bears in Japan, including figures for locally endangered populations of Asiatic black bear.



Note: all figures are estimates only. (Adapted from diagram sourced from Japan Bear Network, 2005)

As seen from Figure 9, Hokkaidō is inhabited by the Hokkaidō brown bear (*Ursus arctos yesoensis*), a subspecies of brown bear. According to Mano and Moll (1999), the brown bear inhabits about 50 per cent of the island, but its habitat is separated into five regional subpopulations, one of which is listed as an endangered subpopulation according to the Red Data List.[41] Combined, these populations are estimated to total fewer than 3,000.[42] Like the Asiatic black bear, the brown bear is omnivorous (though it is classified as a carnivore), but more predatory than the Aisatic black bear. It is also substantially larger, adult males weighing between 135 and 390 kg, and adult females weighing between 95 and 105 kg.[43]

5.4.1 Habitat degradation, fragmentation and loss

The two key factors impacting on the population and distribution of the Asiatic black bear are habitat loss and hunting.

As has been noted, nearly 70 per cent of the Japanese archipelago is forest cover. However, of this, about 43 per cent is coniferous plantation forest. Of the remaining half which is 'natural forest', most is secondary growth forest which has regenerated following the clear-cutting of forest in the post-war decades. Indigenous beech forest, which largely coincides with the remaining habitat of the bear, now covers only 3.9 per cent of Japan's land area.[44]

The cutting of indigenous mixed forest and its conversion to plantation forest has impacted on the bear in two key ways: it has reduced its food sources, and destroyed sites suitable for denning. Plantation forest has replaced broadleaf mixed forest which included mast species such as oak and beech, the acorns and nuts of which are an important source of food for bears. Additionally, monocultural coniferous forest does not provide or support the complexity and diversity of flora and fauna that natural mixed forest does, and therefore cannot support a species with high nutritional requirements such as the bear. Secondly, the cutting of mature trees, in (and under) which bears den, has reduced the bear's ability to hibernate in a suitable and safe place, thereby affecting its ability to reproduce.

Human activity in forested areas also affects bears, sometimes 'displacing' them from their original habitat into areas with a lower human presence. In recent decades, logging has been carried out in previously inaccessible areas of natural forest, thereby impacting on core areas of bear habitat. Forest roads are thought to cut through animal trails, the potential effect of which is to disrupt the movements and feeding patterns of forest wildlife.[45] One unintended effect of forestry roads is that they provide ease of access to recreational users who can now enter previously inaccessible forest for activities such as collecting mushrooms or bamboo shoots, or fishing. This heightens the likelihood of encounters with wildlife, particularly bears, and increases competition between bears and humans for the same foods.[46]

In addition, in the last decades infrastructure such as roads, tunnels and dams have been constructed in mountainous areas, and ski fields and resort facilities developed as part of a drive to expand the 'leisure industry' and in an effort to 're-invigorate' rural areas.[47] Particularly damaging to bear habitat is the large number of ski fields which have been developed since the 1960s, thereby destroying some of the last remnants of broadleaf forest at 600–1100 metres altitude in some regions. For instance, in the Chūgoku region in south-west Honshū, where the bear population is now estimated to be between

300 and 400, twelve ski fields have been constructed in Hiroshima Prefecture alone, while in the neighbouring Shimane Prefecture, two have been constructed.[48] The construction of expressways and other roading infrastructure through mountainous regions has also been a key contributor to the fragmentation of bear and other wildlife habitat. According to anecdotal evidence, dam construction appears to lead to the displacement of bear populations, owing primarily to the cutting of large areas of natural forest which generally precedes their construction. For instance, locals in Gifu Prefecture report that since two large dams were built near Asahi Village in Ono County, bears have been reported to appear more frequently in human-inhabited areas where they were previously not seen.[49]

A possible consequence of the increasing fragmentation and isolation of populations is in-breeding. While there is no conclusive research concerning the possible detrimental effects of in-breeding, there is an increasing incidence of albino bears in the Kitakami Highlands in Iwate Prefecture, which researchers are suggesting may be the consequence of in-breeding.[50] However, one consequence is certain—as the carrying capacity of bear habitat declines due to degradation, fragmentation and loss, bears are increasingly appearing in or near human settlements in search of food, particularly in the autumn. This leads in turn to the bear being involved in human-bear conflict and being culled as a 'pest', a consequence which is discussed in the sections to follow.

5.4.2 Hunting, culling and poaching

The hunting of bears falls into three categories: legal hunting (as game); culling (as pests or as threats to human safety); and illegal hunting (poaching). Since the post-war period, the percentage of bears killed as game animals has gradually decreased, while the percentage of bears killed as pests (culled, or control-killed) has steadily increased. In some prefectures, the figure for control-kills comprises up to 80 per cent of the total annual harvest.[51] This is a direct consequence of increased human-bear conflict.

The bear is considered a game species under the Wildlife Protection and Hunting Law (1918) (see Chapter Six), and therefore subject to the same regulations as any other game species.[52] However, there is either an outright ban or restrictions on the hunting of bears in four regions where its populations are endangered: the Kii Peninsula, Western Chūgoku, Shikoku, and Kyūshū (where the bear is considered extinct).[53] The official hunting season runs from November 15th to February 14th. Hunters must obtain a hunting license and register with the prefecture in which he/she intends to hunt. The responsibility for monitoring compliance with these and other hunting regulations is largely assigned to volunteers called *chōjū hogoiin* 鳥獣保護員 (wildlife conservators), the majority of whom are selected from local hunting associations (*ryōyūkai* 猟友会), a system which has obvious potential for conflict of interest.[54]

In contrast to recreational hunting, control-killing may be carried out at any time of the year, even in regions where hunting is prohibited or restricted, provided there is a report of pestilence or risk to human safety, and provided approval is forthcoming from the prefectural authority. The criteria for the approval of control-kills are vague, and they are granted almost automatically, with little or no verification that claims of pestilence are valid, or that the bear that is subsequently trapped is the individual responsible for the pestilence.[55] Box traps (metal cages with vertically sliding 'gates') and increasingly, drum traps (traps constructed from two steel drums connected end to end, with 'gates' at each end) are used all year round to trap bears near timber plantations and other crops where they are known to cause damage.[56] Bears caught in traps are usually shot, rather than being re-released (relocated) in the forest, as they tend to become aggressive, and are deemed a threat to human safety. Bear cull numbers are not managed according to biological data on the species and though some prefectures have now set maximum annual harvest limits, this is not based on robust scientific data—indeed, few prefectures have even ascertained population statistics with any certainty.[57] In any case, any maximum harvest limits are targets only, and there are no penalties if they are exceeded.

As previous discussion has indicated, diminishing and fragmented habitats, and fluctuations in annual food supply have increased human-bear encounters in Japan.[58] When human-bear encounters or bear pestilence occurs, culling is the most common method of dealing with the conflict.[59] By means of comparison, in the United States, in fourteen of the 42 states inhabited by black bears, the killing of black bears is prohibited outright, even in cases of nuisance activity (although the right of landowners to protect their lives or livestock is recognised).[60] In states where culling of nuisance bears is permitted, non-lethal measures such as aversive conditioning and relocation are generally employed in the first instances of nuisance activity, followed by control killing measures only when nuisance activity (by the specific individual in question, identified through tagging) persists.[61] In Japan, alternative measures such as aversive conditioning (the use of negative conditioning to instil in the bear an association between human-occupied spaces and negative events), relocation (relocating the individual to an area where it is less likely to be the cause of further pestilence or conflict situations) or preventative measures such as the installation of electric fences, are not commonly used, due to their cost and a lack of available expertise necessary to install and maintain them.[62] Nevertheless, these methods and measures are beginning to be more widely adopted, often in regions where the involvement of non-government organisations (NGOs) is high (for example, Karuizawa, Nagano Prefecture), or where local populations have reached an extremely low level (for instance, Hyōgo Prefecture). Alternative methods of pestilence prevention have also been trialed in some places: for example, some villages in western Japan have experimented with the use of grazing cattle to keep grass and undergrowth down to increase visibility and thereby make *satoyama* less attractive to bears.[63]

As noted in the previous chapter, bears are not protected in national parks either: where a bear appearance in a national park is deemed a threat to human safety or as having the potential to deter visitors, the bear is trapped and culled.[64]

Bears often sustain injuries in traps, especially when left overnight or for a period of days. For instance, bears damage or break off teeth or claws, or crush jaw bones in their attempts to escape from traps.[65] Injuries are particularly serious when box traps are used, as the bear will often claw or bite at bars repeatedly in their attempts to escape.[66] These injuries are likely to cause considerable pain and suffering for the bear, but they also make it more difficult for released bears to survive in the wild, increasing the risk that they will 're-offend'. Bears are also mistakenly caught in snare traps set for wild boar, particularly in western Japan, where wild boar are considered a serious agricultural pest. As these traps are often not adequately monitored, bears can be left trapped for days, leading to serious injury such as lost limbs. In a survey conducted in western Chūgoku over the period from 1990 through to 1998, bears had been caught in 64 snare traps intended for wild boar. Of these, three bears had lost limbs. In one case, one of these bears had managed to escape, leaving behind its paw in the snare.[67] Such injuries have the potential to make bears more dangerous and more likely to engage in 'nuisance activity' in their search for food. One example of such a case occurred in 2004, when a bear was found eating persimmons in a tree in a village in Nagano Prefecture. The bear had lost one paw, possibly as an injury from a trap. It was later shot. (This case is discussed further in Chapter Seven.)

Additionally, anecdotal evidence indicates that bears may become more dangerous when injured by gunfire. In September 2006, a hunter was attacked by a bear which he had shot. The bear had fallen to the ground from the tree to which it had escaped, and thinking the bear was fatally injured, the hunter approached it, at which point he was attacked.[68] Sometimes incidents have even more serious consequences: in 1988, three people were killed in quick succession in a bear attack in Yamagata Prefecture. Afterwards, an autopsy was performed on the bear thought to be responsible and an injury in its skull discovered, probably caused by a bullet.[69] There is no way of knowing whether this injury caused the bear to become unusually aggressive, but it cannot be discounted as a cause.

There is also thought to be a significant level of poaching in Japan, particularly in periods when bear-gall is supposed to be at its best.[70] Poaching (hunting outside the designated time-frame, region, or using prohibited methods) is of course illegal, but official monitoring is minimal or non-existent.[71] Poachers generally use traps, rather than hunting bears with guns.[72] One hunter interviewed suggested that this is because poaching using traps is harder to detect—it is much easier to deny knowledge of a trap left somewhere in the forest than to claim innocence when observed holding a gun, or game, out

of season or without a license.[73] In any case, due to lack of resourcing, authorities rarely detect or enforce penalties for such activity, so there is little deterrent.[74]

Poaching is mainly driven by the demand for bear gall. Bear gall is a lucrative product, attracting strong demand both nationally and internationally. While international trade in bear parts is prohibited under the Convention of International Trade in Endangered Species (CITES), it is still known to occur, and the sale of bear parts within Japan (provided the source is domestic) remains legal. In fact, it appears that CITES may have contributed to making gall more valuable—according to a survey of retailers of bear gall (namely, traditional medicine shops) conducted in 1997, the price of bear gall had increased in the years since the CITES treaty was ratified.[75] The survey, which involved 174 traditional medicine shops in Tokyo and Osaka, found that 58 of these sold bear gall. Prices ranged from 1,600 to 10,500 yen per gram, averaging around 7,000 yen.[76] Today, according to one practising hunter, a hunter can earn about 400,000 yen for a gall-bladder taken from a 100 kilogram bear.[77] Given how lucrative bear gall is, it is natural that there is a temptation among some hunters to hunt bears illegally, particularly as the chances of being caught and prosecuted are very slim.

5.5 Human-bear conflict in Japan

As noted in Chapter One, bears are not the only cause of human-wildlife conflict, and in terms of financial costs at least, are by no means the most serious perpetrators of pestilence. Table 1 provides data on the 'top ten' agricultural pests, in order of magnitude. As can be seen, over the four years surveyed, the cost of damage caused by wild boar, deer and crows was eight times the magnitude of that of bears, while figures for monkeys, and four species of bird were also significantly greater. However, as will be discussed below, the cost of human-bear conflict cannot be evaluated in terms of financial value alone: psychological trauma caused by encounters is also a major 'cost'.

Table 1: The cost of agricultural damage caused by wildlife nationally (in millions of yen), in order of magnitude[1]

year	wild boar	deer	crows	monkeys	sparrows	brown bulbuls[2]	grey starlings	pigeons	bears	ducks
1999	4,364	4,878	4,063	1,412	1,338	816	862	727	489	552
2000	5,211	4,779	4,326	1,292	1,422	1,039	767	691	1,055	566
2001	4,698	4,310	5,282	1,488	1,035	984	906	732	464	430
2002	5,233	4,069	4,161	1,420	961	1,879	747	726	308	420
average[3]	4,877	4,509	4,458	1,403	1,189	1,180	821	719	579	492

(Source: Ministry of Agriculture and Fisheries, 2003)

1. Data for animals causing the ten highest levels of pestilence only
2. Type of bird
3. Average over the four years

Human-bear conflict comprises three main categories: agricultural pestilence, forestry damage and human-bear encounters causing injury to humans. Bear damage became prominent in the 1970s, as

damage to coniferous plantation forest and agricultural crops increased.[78] The most common targets of bear pestilence are silviculture, agricultural and horticultural crops (grains, vegetables and fruit), and less commonly, apiaries, fish-farms and livestock. For instance, in a survey conducted in Gifu Prefecture in 1991, it was found that of a total of 235 incidents of bear pestilence or damage, bark-peeling damage constituted 52 per cent; crop damage 23 per cent; damage to beehives sixteen per cent; damage to stock or fisheries one per cent, and attacks on humans constituted eight per cent.[79] Pestilence is most common between late summer and autumn when bears are building up their nutritional intake in preparation for hibernation.[80] Bears are opportunistic feeders and are also known to eat food (mainly sweets and fruits) left as offerings at gravesites and even to eat food from kitchen tables.[81] They become notably determined in their activities when honey is at stake, breaking into roofs of houses and temples to access bees' nests.[82]

Nationally, the greatest damage in economic terms is to silviculture. This damage mainly takes the form of bark-stripping, which can lead to defoliation, impaired grown, and the death of the tree (see Figure 10).[83] When bark-stripping a tree, the bear loosens the bark at the base of the tree by peeling strips of it upwards with its claws and teeth, leaving long strips of the peeled bark dangling from the trunk of the tree (in some species of conifer, the bark is removed altogether from the trunk). After the bark has been stripped, the bear gnaws at the exposed sapwood, leaving shallow groove-marks on the trunk.[84] Bark-stripping caused by bears affects the main commercial plantation species of cedar, cypress, and larch as well as some indigenous conifer species.

Figure 10: Bark-stripped tree in a forest near Neo-mura, Gifu Prefecture. (Photo: C. Knight)

Crop damage tends to affect farms in upland areas, generally adjacent to forested mountain-sides. The economic value of the damage caused in each incident tends to be relatively low, and in any case, there are no compensation systems for wildlife pestilence, and so many of those affected either feel helpless or resigned to the damage. Further exacerbating the problem for the victim is the habit of bears to return repeatedly to a site where they have found a food source, meaning that particular farms tend to be targeted many times.[85] As noted, bear-pestilence of agricultural crops is less widespread than that caused by other wildlife, but for some—particularly elderly—small-holders, it may become the last straw in a series of difficulties faced in making a viable living from farming. Currently there is no effective system for reporting and collecting data on agricultural damage caused by bears, and figures that have been reported are not very reliable.[86] This means the scale of the problem is not well understood.

The composition of bear pestilence differs significantly according to region. For instance, silvicultural damage is unevenly distributed across the bear-range areas of Honshū. It is low in the Japan Sea regions and in the north of Honshū, but can be very serious in regions on the Pacific Coast.[87] It is not known why there is such regional variation.[88]

A final category of human-bear conflict is attacks on humans (or more accurately, encounters between bears and humans leading to human injury).[89] Every year there are numerous such incidents involving foresters, hunters, herb-gatherers, mushroom-pickers, anglers, hikers and so on. Historical data shows that encounters between humans and bears increase in years when natural food sources (especially mast) are low, a pattern also evident in encounters in North America between humans and the omnivorous American black bear.[90] Nevertheless, fatalities resulting from human-bear encounters are relatively low: over the period between 1979 and 2006, there were 23 deaths from (Asiatic black) bear attacks, an average of less than one death annually.[91] (In comparison, an average of 40 to 50 people die annually as a result of bee or wasp stings, for example.[92]) However, while rarely fatal, injuries caused by bear claws and teeth are not only painful but can also lead to permanent disfigurement, particularly when facial injuries are involved. Victims can also be left psychologically traumatised by an attack.

Table 2: Fatalities from bear attacks 1979 to 1997

year	month	prefecture	age	gender	activity at time of occurrence
1979	May	Akita	74	m	picking mountain vegetables
1983	June	Akita	49	f	picking bamboo shoots
1984	September	Iwate	65	m	picking mushrooms
1985	July	Akita	53	m	picking mountain vegetables
1986	September	Iwate	37	m	picking mushrooms
1988	May	Yamagata	61	m	picking bamboo shoots
1988	October	Yamagata	59	f	gathering walnuts
1988	October	Yamagata	61	f	gathering chestnuts
1990	April	Fukui	78	f	picking *zenmai*
1992	June	Akita	64	m	picking bamboo shoots
1993	May	Akita	65	f	picking *warabi*
1994	October	Akita	69	f	gathering chestnuts
1997	April	Aomori	44	m	hunting

Source: Maita, 1998

Maita (1998) has recorded the details (location and activity involved) of all bear-attack fatalities between 1979 and 1997, and the results are shown in Table 2. Over this period, thirteen fatal attacks occurred. Of these, all thirteen occurred when the victim was engaged in an activity in a wooded area, and with the exception of the hunting incident, all involved the gathering of foods to which bears are also attracted. This pattern is also evident in data gathered regionally. For example, in Iwate in 2001, there were 68 (non-fatal) attacks on humans. Of these, an overwhelming majority (50) occurred in the forest (involving

herb and mushroom collectors and foresters) (see Chapter Ten).[93] Thus, in the case of many human-bear encounters, the presence of bears is, to some degree at least, to be expected.

Based on this pattern, some commentators divide bear incidents causing injury into two distinct categories: incidents which occur in human 'habitat' (i.e., where bears enter human populated areas such as farms, villages and towns, usually attracted by human food sources) and those which occur in natural bear habitat (i.e., when humans enter bear habitat and are attacked). This distinction is not simply academic. While most experts agree that the root cause of both kinds of attacks are the same—i.e., the depletion of natural bear habitat—the patterns and trends displayed by each category are quite distinct, as will be explained below.

As noted, incidents which occur in human-populated areas fluctuate from year to year depending on the availability of natural food sources (especially mast). Bears are more likely to venture into human-inhabited areas to find alternative food sources when these natural sources are depleted. In particular, recent research has shown that the frequency of incidents occurring in human inhabited areas is linked directly to the nut production of forest trees such as beech and oak. One study conducted over the period from 1994 to 2004 found that bear culling rates were at their highest in years of poor beechnut crops, and conversely, decreased when nut production levels were high.[94] It is agreed by most observers that the high rate of incidents in 2004, particularly in the Hokuriku region, was caused by exceptionally poor beechnut crops over a wide region. While no one can specify exactly the factors determining whether poor hard mast crops are going to be 'normal', below average, or above average, harvests appear to be the product of a combination of climatic factors and the natural cycles of the trees themselves. For example, the poor nut harvest of 2004 was linked by many commentators to the exceptionally hot summer that year, though it is likely that this also coincided with a low masting year in the natural cycle of the species concerned.

The depletion of natural forest habitat has exacerbated the effects of poor mast years: when a large area of natural forest existed, bears could supplement their diet with alternative food sources in a year when a particular species of tree had a poor nut harvest. For example, in a year when the beech has a poor mast, the oak may have a normal or good mast, in which case, the bear can rely more heavily on acorns as a food source. However, as the area of natural forest decreases, and mature mast trees are fewer as a result of clear-cutting and selective logging, the bear's ability to find alternative natural food sources in years of poor harvests has lessened. As a consequence, bears are drawn into human-inhabited areas in which poorly protected crops and organic waste are disposed of in easily accessible places, which provide bears with relatively low-effort, high-energy alternatives to their depleted natural food sources. Because the factors leading to the high incidence of bear appearances are largely climatic and environmental, there is little that humans are able to do to eliminate the cause of this phenomenon in the short term. However, people are able to make human food sources less attractive and accessible through the use of protective

measures such as electric fences and the proper disposal of crops and other waste. (The application of such preventative measures, and their success, will be examined further in the case study in Chapter Ten).

In the case of incidents which take place in bear habitat, there appears to be a consistently upward trend. This is due to the fact that an increasing number of people are venturing into forested areas for leisure activities. In the past, those entering forested uplands were predominantly foresters, hunters and the occasional hiker. However, in recent years, increased accessibility as a result of an expanding network of road-ways and the increased ownership of four-wheel drive vehicles means that more people are venturing into forested uplands for leisure pursuits. Additionally, or perhaps as a result of this increased accessibility, Japan is experiencing what is commonly referred to as an 'outdoor boom' which has seen a burgeoning of the popularity of such pursuits as hiking, mountain-stream fishing and the gathering of wild-foods. Bamboo shoots, *sansai* 山菜 (mountain vegetables such as fern shoots) and wild mushrooms have long been common food sources for the Japanese dating back to the pre-historic period. However, in recent years the gathering of these foods—bamboo shoots and *sansai* in the spring, and wild mushrooms in the autumn—has become a popular leisure pursuit, especially on fine weekends. Given that these are also important seasonal foods for the bear, it is not surprising that bears are sometimes encountered on these excursions. In particular, *sansai* are commonly found near the banks of mountain streams, which, as a source of both food and water, are also common 'refreshment spots' for bears.

In addition to hiking, a growing number of people are engaging in mountain stream (*seiryū* 清流) fishing. As the Japanese name suggests, mountain streams offer largely unpolluted, clear water in peaceful settings surrounded by forest and so it is no wonder they are popular spots for fishing among outdoor enthusiasts. However, fishing in these mountain streams is a particularly dangerous pastime from the point of view of bear encounters, because, bears, who have relatively poor eyesight, rely on their hearing to detect the presence of humans. The sound of a fast-running stream tends to drown out the sound of human and animal movement for both bear and human. This can lead to a bear finding itself so close to a human that it chooses to attack rather than flee, particularly when cub(s) are present.

In its composition, human-bear conflict in Japan differs considerably from human-bear conflict involving the American black bear, the latter being comprised predominantly of human-bear encounters, livestock depredation and apiary pestilence.[95] Most human-bear encounters leading to injury in the United States occur in national parks, campsites and other recreational areas, rather than in or around human settlements, and pestilence of agricultural and horticultural crops is less common than other forms of nuisance activity such as scavenging from garbage. This difference in composition is attributable mainly to the difference in settlement and livelihood patterns between Japan and North America. In Japan, humans have settled for centuries in forest-edge, upland regions, making their livelihoods through agriculture and forestry. People therefore live and carry out agriculture and other land-based enterprises within close proximity to bears.

In comparison, in North America, agriculture and other land-based enterprises are generally carried out on lower-lying areas, far removed from the forest habitat of bears.

For this reason, in Japan, the delineation of human space and wildlife habitat in forest-margin areas, referred to in Japanese as *sumiwake* 住み分, is recognised as a key strategy to reduce human-bear conflict. As noted, this was traditionally achieved by way of the *satoyama* zone which acted as a buffer zone between upland settlements and the forest. The recognition of the importance of the 'buffer zone' between agricultural fields or human settlements and the forest is not unique to Japan. In forest-edge regions in other countries, researchers of human-wildlife conflict recommend that crops are planted at distances of greater than 500 metres from the forest-edge, and that non-palatable plants are planted between the forest and agricultural fields.[96] For instance, researchers suggest that bear pestilence in East Kalimantan, Indonesian Borneo, occurs because such a buffer zone does not exist, and increased human encroachment and destruction of the bear's forest habitat is leading to the bear and other wildlife seeking food outside the forest.[97] However, what is not clear from the literature is whether the concept of 'buffer zone', equivalent to the Japanese *satoyama*, existed in the consciousness (or geomentality) of people in other cultures traditionally.

There is another important aspect to bear pestilence: namely, its victims are predominantly older residents of remote, and increasingly depopulated, rural areas—in other words, it is a manifestation of the widening social and economic disparity between rural and urban Japan. For example, in Iwate in 2001, of a total of 89 incidents involving human-bear encounters leading to injury, over 80 per cent involved people between 50 and 90 years old.[98] Indeed, bear pestilence and attacks are, predominantly, a problem of towns and villages in upland rural Japan which are characterised by both depopulation and aging. As such, the problem is, generally speaking, one that tends to affect elderly people who live in regions in various stages of demographic and economic decline.

This situation was expressed as follows by Hazumi in his statement to the Diet Committee on the Environment in May 2006:

> The 'wildlife problem' is perceived by most people (in Japan) to be an extremely minor issue, of interest only to those in a highly specialised field. However, this problem is in fact intrinsically connected with the regional socio-economy. In other words, it is the upland areas in an advanced stage of depopulation—which is itself an extreme manifestation of the social disparity in Japanese society today—which are suffering most from this problem...
>
> ...When we talk of short-term countermeasures, in fact it is an issue of social welfare for the elderly residents of these upland areas. These farming people, [many of whom are] elderly men and women in their seventies and eighties, are suffering as a result of wildlife pestilence. Providing for these people is not a matter of debating how much budget there is available for wildlife pestilence measures, rather it is a simple matter of social welfare, and in my opinion, there are a number of ways in which we can utilise the social welfare system to do more for these people.[99]

In many cases, the residents of isolated rural areas, particularly those engaged in farming or forestry, already feel a sense of social and economic alienation and abandonment, both in a practical sense, because younger family members are out-migrating rather than remaining in the village to succeed to the family farm or other enterprise, and psychologically, by society as a whole. Agriculture has also long since slipped from its dignified status as the 'backbone' of the Japanese economy, and small-holder farmers are now regarded as 'dispensable'. In some cases, as mentioned, they also feel that they have been betrayed by the government which encouraged them in the post-war era to convert land to forestry, but which subsequently abandoned domestic forestry in favour of cheaper imported timber. In his research of the Kii Peninsula, Knight (2003) noted this sense of alienation, and the way wildlife pestilence exacerbates this. He observes how rural communities which are affected by bear pestilence can be stigmatised as 'backward'. In the case of one rural town in Yamagata, there were fears that fatal bear attacks would make it even more difficult for local men to find brides.[100] Furthermore, the idea of human-bear conflict is so remote to most city people that it may almost appear farcical.[101] This dimension of human-bear conflict as a manifestation of social disparity is referred to in this thesis as the 'bear as social barometer', and will be explained further in the chapters to follow.

As discussed in Chapter Three, the contemporary human-bear relationship is not only one of human-bear conflict. The euphemistically named 'bear park' (*kuma bokujō* 熊牧場 in Japanese) is another aspect of the bear's place in Japanese society today which should not be overlooked. For the vast majority of Japanese, the only contact they are ever likely to have with a live bear is in a zoo or bear park, as discussed below.

5.6 Bears in captivity—bear parks

Japan does not have a long history of entertainment using bears; bear-baiting, arena-fighting, or dancing are not evident in Japan's cultural history, as they were in the other cultures surveyed in Chapter Three. Even zoos and bear parks are a relatively recent phenomenon in Japan. The overwhelming majority of bears in captivity are held in bear parks, and it is on these that this section will focus. In that they are facilities exclusively for bears, bear parks are, as far as the current author is aware, facilities which are unique to Japan. Bear parks first began as facilities to house orphaned cubs brought in by hunters after the spring hunt,[102] and subsequently developed into tourist operations. Japan's first bear park opened in Noboribetsu, Hokkaidō in 1958, and several others soon followed across Japan. There are now eight parks across the country holding over a thousand bears in total. Bear parks are noteworthy in that they have generally developed in places where there is a strong history of traditional hunting culture. It may therefore strike an observer as incongruous that a facility which houses bears in cramped, unhygienic, unnatural and often physically harmful conditions initially sprang out of a tradition which involved a strong reverence and respect for the bear. This aspect will be discussed after providing an overview of these facilities in Japan.

Typically, bear parks are based in rural areas and as a tourist operation are an important source of revenue. For example, the bear park is the main attraction in the small town of Ani in Akita Prefecture (which was traditionally a *matagi* village). The Ani Bear Park opened in 1990 with 53 bears, most of which were cubs orphaned in spring hunts.[103] It is owned and operated by the Ani town council. It attracts about 32,000, mainly Japanese, visitors per year and it earns about nine million yen per annum.[104] This is enough to cover costs but not to make any significant profit, and very little money is reinvested in the complex. At the park, nearly one hundred bears are currently kept in three enclosures.

According to the London-based World Society for the Protection of Animals (WSPA) report of 1998 on bear parks, on the occasion of the society's previous investigation in 1991 the management of Ani Bear Park reported that they wanted to increase the numbers of bears from the 53 they had at that time to 200 in an effort to increase aggressive interaction between the bears. This was as a result of feedback from visitors that watching inactive bears was 'boring'.[105] When the author visited in 2005, the three enclosures were certainly overcrowded, but at 100 bears, the park had not reached their target of 200, so this may be an indication that there has been a change of heart regarding this objective.[106]

Bear parks have largely developed unmonitored and unregulated by authorities: consequently, the conditions in which bears are held are of a generally low standard. The enclosures are constructed entirely of concrete with no vegetation of any kind. The only shelter is provided by concrete bunkers. Bears are fed unsaleable or spoilt vegetables and fruit such as corn and apples supplied by local growers. As a result of crowded and unnatural conditions, bears display abnormal and aggressive behaviour such as fighting, pacing, 'clapping' or chewing on their paws, and the waving of their head from side to side. On the occasion of the author's visit to Ani Bear Park, some bears had prominent injuries as a result of fighting.

Figure 11: Sign in Ani Bear Park (Photo: C. Knight)

Figure 12: Second sign in Ani bear park (Photo: C. Knight)

Owing to the unnatural conditions in which bears are kept and the abnormal behaviour they display in these parks, the parks provide little educational potential. In the Ani bear park, no biological or ecological information is provided to visitors beyond two small signs (Figures 11 and 12). What is more, one of the

signs displays grossly incorrect information: stating that the bear has a height of approximately four metres and a full-grown male has a weight of 220 kilograms. (As was noted in section 5.3, the average weight ranges between 40 and 120 kg and the average body length ranges between 110 and 140 cm.)[107]

In some parks, such as Noboribetsu and Okuhida, bears are trained to do 'tricks' such as riding a bicycle, swinging on a swing, catching and throwing a ball, or walking on a large ball (see Figure 13).[108] Malcolm Fitz-Earle, a wildlife biologist and university professor, made the following observations on his visit to Okuhida Bear Park in January 2005:

> In a separate building there was a bear show, in which a young female bear performed tricks for the visitors such as riding a bicycle, juggling balls, guessing numbers and shooting basketballs into a hoop. She was wearing a dress, and also had her mouth restrained with a muzzle. However, the saddest part of my visit to the bear park was to see the cages that some of the orphaned cubs were living in.[109] In one cage a cub that looked very emaciated was trying to escape through the bars. In another cage two cubs were curled up together. They were covered in their own excrement. I felt that it was extremely cruel to treat these intelligent wild animals so badly.[110]

Figure 13: Performing bear at Okuhida Park, Gifu, 2005. (Photo: M. Fitz-Earle)

Figure 14: Bear cubs in a small cage in Okuhida Bear Park (Photo: S. Schnell).

Some bear parks are known to earn revenue from more than just visitors' entry fees. In a 1997 survey of pharmaceutical companies which manufacture products containing bear gall, one respondent reported that its supplier was a bear park in Japan.[111] In a previous survey conducted in the early 1990s, five out of the eight bear parks surveyed admitted to selling bear gall from bears which had died in their facilities.[112] This is not altogether surprising: there are no laws or official guidelines regulating, or even guiding, the handling of dead bears or their body parts.[113]

One notable aspect of the place of the bear park in contemporary Japanese society is that despite the parks attracting strong criticism from international organisations, they do not appear to attract much criticism within Japan itself. This aspect is commented on by Hazumi and Yoshii (1994) who suggest that the Japanese public are, by and large, oblivious to the international criticism these facilities attract for what is

perceived as the cruel and inhumane treatment of bears.[114] For example, the Noboribetsu Bear Park in Hokkaidō first attracted criticism and world-wide notoriety in March 1992, at a Washington Treaty (Convention on International Trade in Endangered Species) conference. At the conference, criticism was sparked by a 1991 report by the WSPA, which highlighted the inhumane treatment of bears in its facilities. In addition to being critical of the general conditions in which the bears were kept, it became apparent that the park had on one occasion had approximately one hundred 'surplus' bears slaughtered at a local abattoir and sold for their meat and gall-bladders.[115] Despite these revelations, and despite a number of follow-up investigations and reports by both international and domestic animal welfare groups, Noboribetsu Bear Park only received official sanction from a Japanese body (the Japan Zoo and Aquarium Society (JZAS) *Nihon Dōbutsu Suizokukan Kyōkai* 日本動物水族館協会) in February 2006, fourteen years after these high-profile allegations and criticisms were made.[116] The JZAS sanction followed soon after an advertising campaign and the launch of a website by the Japanese branch of WSPA aimed at raising awareness of the bear park issue among the Japanese public, and it may also have been triggered by a visit only a few months earlier by Edward McAlister, the chairman of the World Association for Zoos and Aquariums, in which he described the conditions he saw as 'nineteenth century'. In the end, the sanctions imposed by JZAS were relatively weak: JZAS requested only that a 'proposal for improvements' for the 'overcrowded and unsatisfactory feeding conditions' should be submitted by the end of March 2006.[117]

As noted above, as a cultural phenomenon bear parks may appear incongruous as they have generally developed in places where there is a strong hunting heritage, and supposedly a traditional reverence for the bear. Yet, in these facilities, bears are kept in poor conditions and sometimes incur considerable suffering. It is the present author's suggestion that these facilities were originally not created out of any disrespect for the bear, but conversely compassion: namely, the inability of hunters to simply abandon orphaned cubs in the wild or kill them. Instead, hunters would often adopt cubs, or entrust them into a bear park facility's care. Nevertheless, the reality is that these facilities have now transformed into revenue-earning operations to provide entertainment for tourists, and the conditions in which bears are kept are generally poor. Hunting in the spring is now outside the hunting season and therefore illegal in Japan (though it is still known to occur under the guise of 'pre-emptive culling'), and therefore the orphaning of cubs should not be occurring as frequently as it did in the past. As a result, most facilities now deliberately breed cubs from the bears held in captivity. Therefore the ethical question as to whether these bears would have been 'better off' being abandoned or killed in the first place, or kept alive in such unnatural conditions is now largely moot, and the matter is a little more clear-cut: namely, is it ethical to keep bears in these conditions for the purposes of human profit and entertainment? This moral aspect is largely absent in the discourse and public reaction to bear parks in Japan, for reasons, the present author proposes, which are connected with the discussion in Chapter Two: the relative lack of philosophical tenets governing the ethical dimension of the human-animal relationship. This aspect of the human-bear relationship in Japan will be further discussed in the case study in Chapter Ten.

5.7 Summary and conclusions

The habitat of the bear has decreased dramatically over the last century, mainly owing to forestry activity, but also as a result of the development of infrastructure and recreational facilities in Japan's uplands. The two threats to the future sustainability of bear populations in Japan are habitat degradation and depletion, and hunting. Hunting is made up of three components: recreational hunting, control-killing and poaching. Of these, it is perhaps control-killing which poses the greatest threat to the future of the bear. When bear pestilence occurs, the primary measure taken is culling. Alternatives or preventative measures such as aversive conditioning or the use of electric fences are rarely employed. Therefore, in years of high pestilence (usually resulting from poor hard mast crops), culling rates increase dramatically, as was seen in both 2004 and 2006.

Human-bear conflict in Japan is comprised mainly of agricultural and forestry pestilence and human-bear encounters. The majority of human-bear encounters take place in the forested uplands, i.e., 'bear habitat', however, they are increasingly occurring when bears venture into human settlements in search of food. From a financial perspective, forestry pestilence is the most serious form of damage caused by bears.

The other prominent dimension of the human-bear relationship, bear parks, was also examined. While the use of bears as entertainment appears to be absent in Japanese cultural history, these facilities have emerged since the 1950s, originally as a facility to house orphaned cubs. They are now run primarily as revenue-earning operations, but usually on small budgets which allow little for the improvement of facility conditions. There have been recent efforts, largely stemming from international pressure, to close down or improve the worst of these facilities, but to date little criticism has come from within Japan itself.

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[1] Lekagul & McNeeley, 1977 and Roberts, 1977, as cited in Servheen, 1989.
[2] Servheen, 1989.
[3] Reid, 1993.
[4] Servheen, 1989; Ward & Kynaston, 1995: 161.
[5] Servheen, 1989.
[6] More strictly, *tsukinowa* 月の輪 refers to the ring around the full-moon, but in the case of the bear marking, it refers specifically to the crescent moon *mikkazuki* 三日月 (literally, three-day moon). This appellation dates back to the Edo Period at least: the *Honchōshokukagami*, an encyclopaedia published in 1697 refers to the mark as being the shape of a crescent moon (see Shimada (trans.) 1981: 282).
[7] Hazumi, 1999: 208. Note that there is some variance in even these basic physiological 'facts'. Another leading bear biologist, Oka (2003: 51), states that the weight range for a male bear is 50–120 kg, and for a female 40–70 kg, and that the height for both sexes ranges from 1 to 1.5 metres.
[8] Reid, 1993: 118–9. For instance, the Asiatic black bear and American black bear are both adept at tree-climbing, and the only two bear species known to peel bark from trees to gnaw on the soft wood underneath.
[9] Oka, 2003: 51. Alternative statistics for the average annual ranges are 66.06 square km² for males and 26.37 km² for females. Total home range size for the lifetime of an adult male reaches 180 km² (Hazumi, 1999: 208).
[10] Hazumi & Kitahara, 1994: 18. There is some disagreement among biologists as to whether bears are true hibernators or not. Many researchers have preferred the term 'denning', because the bear does not experience a drastic decrease in body temperature as other mammals do when hibernating. However recent research suggests that bears are indeed hibernators—

their highly insulative pelts allowing a drop of metabolic rate of 50 to 60 per cent, while retaining a close to normal body heat (see National Park Service, 2006 for an in-depth discussion of this topic).
[11] Hazumi, 1999: 208; Hazumi & Kitahara, 1994: 17; Ezaki, 1993a: 44.
[12] Azumane, 1993: 235.
[13] Ezaki, 1993a: 44; Azumane, 1993: 27; 235. In a very rare case in September 2006, a bear attacked 14 sheep and two goats on a farm in Gunma (*Mainichi Shinbun*, September 7, 2006). This may be an indication of the severity of the natural food shortages in the autumn of that year.
[14] Oka, 2003: 51.
[15] The reason for the behaviour has not been established, especially as it only occurs in some regions (predominantly in the west rather than the east of Japan). Some have suggested it may be a way of marking territory (Watanabe, 1984: 171). Miyazawa (1989: 25–6) suggests this is unlikely, as both male and female bears peel bark.
[16] Sentō, 1993a: 38; Hazumi & Kitahara, 1994: 18.
[17] Hazumi & Kitahara, 1994: 18.
[18] Hazumi & Kitahara, 1994: 18.
[19] Hazumi & Kitahara, 1994: 18.
[20] Nozaki et al, 1983, as cited in Hazumi, 1999: 208; Sotobe, 1993: 41.
[21] Hazumi & Kitahara, 1994: 18.
[22] Hayashi, 1993: 54–5.
[23] *Mainichi Shinbun*, October 25, 2004; Oka et al, 2004: 983. This does not occur in the case of oaks, where there appears to be no correlation between flowering and subsequent nut production.
[24] Maita, 1998: 56; *Iwate Nippō*, February 16, 2006.
[25] Hazumi & Kitahara, 1993: 18.
[26] Hazumi, 1999: 208; Takada, 1993: 62.
[27] Hazumi, 1999: 208.
[28] Hazumi & Kitahara, 1994: 18.
[29] Watanabe, 1984: 197; Miyao, 1989: 145; Ezaki, 1993c: 49; Maita, 1998: 77.
[30] Oka, 2003: 51.
[31] Ezaki, 1993d: 51; Yamazaki, 1990: 17; Watanabe, 1984: 197.
[32] Hayashi, 1993: 54.
[33] See for example Hazumi, 1999: 208; Watanabe, 1984: 180.
[34] Watanabe, 1984: 180.
[35] Hazumi, 1999: 208.
[36] Azuma & Torii, 1980: 71, as cited in Knight, 2003: 160.
[37] Knight, 2003: 160; Hazumi & Kitahara, 1994: 20.
[38] Environmental Agency, unpublished, as cited in Hazumi, 1999: 209.
[39] This is a document produced by the Ministry of the Environment listing both flora and fauna which are deemed extinct, endangered or threatened. See Chapter 6 for further discussion of this list.
[40] Hazumi, 1999: 209.
[41] Mano & Moll, 1999: 128.
[42] Maita, 1998: 33.
[43] Stirling (ed.), 1993: 46.
[44] Hatakeyama, 2005: 61.
[45] Knight, 2003: 36.
[46] See for example, Azumane, 1993: 94.
[47] Hazumi, 1999: 209; Miyai Roy, 1998: chapter 2.
[48] Maita, 1998: 42–43.
[49] Sentō, 1993b: 164–5.
[50] *Mainichi Shinbun*, August 1, 2004.
[51] Hazumi & Yoshii, 1994a: 41, Maita, 1998: 50–1.
[52] In years when there have been a high number of control-kills over the year prior to the commencement of the hunting season, prefectural authorities, with the agreement of the local hunting organisation, will sometimes instigate a 'self-imposed ban' on hunting, referred to as *shuryō jishuku* 狩猟自粛 in Japanese (literally, hunting self-restraint). For example, in 2004 and 2006, both years of high control-kills nation-wide, many prefectures imposed these bans.
[53] Ministry of the Environment, 2002.
[54] Yoshida Masahito 吉田正人, personal communication (email to author), May 2004; Maita, 2001.
[55] Azumane, 1993: 49–52; Hazumi, 1999: 209.
[56] Hazumi, 1999: 209. Box traps were introduced in the 1970s to prevent damage to plantation forest by bears.

[57] Hazumi, 1999: 209.
[58] Hazumi, 1999: 210.
[59] Hanai (1990), Azuma & Torii (1978), Watanabe (1980), as cited in Hazumi, 1999: 210.
[60] McConnell, Garris, Pehek, & Powers, 1997: 33. Bodenchuk, 2000: 25.
[61] See for example, Jones, 2000b: 20–1.
[62] Relocation is also known as translocation.
[63] NHK, February 2005.
[64] Watanabe, 1984: 215. Currently, the only national park in Japan where the sustainable management of bear populations is prioritised over human convenience and enjoyment is Shiretoko National Park in Hokkaidō. There, if a (brown) bear is sighted dangerously close to human activity within the park, the park will be closed to visitors until the bear is located and it is determined whether or not it is a danger to visitors. Aversive conditioning such as rubber bullets are used in preference to culling (NHK, November 2004).
[65] Azumane, 1993: 38–40.
[66] For this reason, drum traps are increasingly being recommended by wildlife management experts, as they can be relatively cheaply constructed, and are less likely to cause injury to the bear (owing to their solid 'walls', the bear does not try to fight its way out).
[67] Maita, 2001.
[68] *Mainichi Shinbun*, September 16, 2006.
[69] Maita, 1998: 58.
[70] Hazumi & Yoshii, 1994a: 40; Azumane, 1993: 50–5; Mizoguchi (1992), as cited in Knight, 2000b: 152.
[71] Azumane, 1993: 73, 183.
[72] For example, according to Azumane (1994: 73) one favoured method of hunting bears among poachers is a snare called a *hira*, *tsubushi* and various other names in Japanese, constructed of timber with a heavy rocks placed on the top. The trap is baited and when the bear walks into the opening and 'trips' a rope or wire which causes the platform to fall on the bear, instantly crushing it into the 'shape of a *senbei* (a rice cracker)', as Azumane graphically describes it. This method was traditionally favoured by hunters because the bear pelt remains undamaged by bullet holes and therefore could sell at a higher price.
[73] Kawabe Hifumi 川部一二三, personal communication, October 2006 (Neo-Mura, Gifu Prefecture).
[74] Hazumi, 1999: 209; Azumane, 1993: 183.
[75] Ishihara, 2005: 61.
[76] Ishihara, 2005: 60.
[77] Kikuchi Takeshi 菊池武志, personal communication, May 2005 (Tōno, Iwate). In 1994, Azumane reported that demand for gall sometimes outstrips supply to the extent that some people have been known to have waited up to three years to receive their 'order'. So valuable and scarce is bear gall, that counterfeit products are common and becoming increasingly sophisticated and convincing, even for experts in the trade. In fact, even empty gall bladders are in demand as counterfeiters use these to create their imitation products (Azumane, 1993: 76–79).
[78] Miyai Roy, 1998: chapter 4, C.
[79] Ezaki, 1993a: 44.
[80] Hazumi, 1999: 210.
[81] Azumane, 1993: 25; *Mainichi Shinbun*, August 18, 2004; *Mainichi Shinbun*, August 19, 2004.
[82] *Iwate Nippō*, June 9, 2006; *Fukushima Minpō*, August 27, 2006. Similarly determined and persistent behaviour is reported in the North American literature pertaining to black bears. Once a black bear identifies an available hive, it will tend to return every night until all the honey, comb and brood are eaten (Hygenstrom (1994), as cited in Jones, 2000a: 32).
[83] Knight, 2003: 170; Watanabe, 1984: 204. In Japanese, this is referred to as *kumahagi* (literally 'bear-peeling') or *kawahagi* (bark-peeling).
[84] Watanabe, 1981: 581, as cited in Knight, 2003: 170.
[85] Maita, 1998: 20.
[86] Maita, 1998: 21.
[87] Watanabe (1981), as cited in Knight, 2003: 170; Maita, 1998: 19.
[88] This kind of regional variation also occurs in the United States, where bark peeling by American black bears is particularly problematic in specific regions such as Washington State (see for example, Ziegltrum, 2004).
[89] It should be noted that while the more neutral phraseology 'encounters with human beings leading to injury' will generally be employed in this thesis, 'attack' (*osou* 襲う, *kōgeki* 攻撃) is the term most frequently used when such an incident is discussed in the Japanese media.
[90] Madrid, 2000: 29.
[91] Maita Kazuhiko 米田一彦, personal communication (email to author), November 7, 2006.
[92] Maita,1998: 16–18.

[93] Iwate Prefecture, 2003.
[94] Research published in *Iwate Nippō*, February 16, 2006.
[95] Herrero, 1985: 93; Jones, 2000b: 20; Jones, 2000b: 30–4; Bodenchuck, 2000: 25; Eason, 2003: 5; McConnell et al, 1997: 33–40; Gunther et al, 2004.
[96] Naughton-Treves et al., (1998), as cited in Fredriksson, 2005: 134.
[97] Fredriksson, 2005.
[98] Iwate Prefecture, 2003: Table 7.
[99] Hazumi, 2006.
[100] Knight, 2003: 175.
[101] One such example was a TV programme broadcast on the national television network (NHK) discussing the 'bear problem'. A man from a rural village in Shimane Prefecture, probably in his sixties, recounted how, when out in the fields near his house to pick up chestnuts one evening, a bear dropped out of tree within ten metres of him and proceeded to 'wrestle' with another bear nearby. The man's demeanour when recounting the story demonstrated that he had found the experience disturbing, but to most listening it was naturally quite amusing. The co-host of the show (who also happens to be a comedian) asked: 'Was Kintarō there too?' (そこに金太郎もいませんでした?), to which the entire studio erupted into gales of laughter. This irreverent question was in reference to the popular Japanese folktale Kintarō outlined in Chapter Nine, in which a boy, who grows up in the forest, develops super-human strength by wrestling with his ursine companions. To an audience unaffected by bear pestilence, this scene is likely to be amusing, but to someone who lives with the reality of encountering or even being injured by a bear, being the object of amusement may have the effect of compounding the sense of alienation.
[102] Maeda, email communication to Bear Network Japan mailing list, February 27, 2006.
[103] Watkins, 1998: 40.
[104] Watkins, 1998: 40.
[105] Watkins, 1998: 42.
[106] The law relating to the treatment of bears and other animals held in captivity, as pets, or to be used for experimental purposes is the Animal Welfare Law (1973) *Dōbutsu no aigo oyobi kanri ni kansuru hōritsu* 動物の愛護及び管理に関する法律, a law criticised for its weakness by non-government organisations (NGO). For example, in 2004 and 2005, the NGO ALIVE ('All Life In a Viable Environment', or *Chikyū Seibutsu Kyōkai* 地球生物会議), an NGO concerned with wildlife conservation and welfare, lobbied for the strengthening of the law, though their concerns were primarily with animal experimentation (Cyranoski, 2005: 6).
[107] The view that these parks lack educational value is not necessarily shared by Japanese institutions, however; while the author was visiting the park in Ani, undergraduate students studying wildlife management at a leading Tōhoku university were directed to conduct research by observing and recording the behaviour of individual bears in the enclosures. This they dutifully did, with no question at all concerning the validity of the exercise.
[108] Watkins, 1998: 22.
[109] On visiting this facility in October 2006, the present author was informed by a member of staff that the bears in the park were primarily the offspring of captive bears, rather than orphaned cubs of bears in the wild. Signs in the facility also indicated this.
[110] Fitz-Earle, 2005.
[111] Ishihara, 2005: 64.
[112] Mills & Servheen (1991), as cited in Ishihara, 2005: 64.
[113] Ishihara, 2005: 64.
[114] Hazumi and Yoshii, 1994: 40.
[115] *Asahi Shinbun*, February 21, 2006.
[116] *Mainichi Shinbun*, February 23, 2006; *Asahi Shinbun*, February 21, 2006.
[117] *Asahi Shinbun*, February 21, 2006.

Chapter Six: The legislative and administrative framework for wildlife management in Japan

6.1 Introduction

This chapter will outline the legislative framework in which the current wildlife management system has developed. An understanding of the legislative and administrative frameworks by which administrators dealing with wildlife management are constrained is vital in order to understand the current wildlife management system. Administrators are not only limited by the legislation, but also by the level of resources, personnel and expertise available to perform the wildlife management function. This means that there is often a wide gap between what the law provides for in theory, and what occurs in practice. These issues will be discussed in section 6.3. Volunteers, non-governmental organisations (NGOs), and research organisations play an important part in the wildlife management function, and their role will be examined in section 6.4.

6.2 The legislative framework for wildlife management

There is no single law dedicated to the protection and management of wildlife in Japan. It is an area regulated by a number of laws, none of which has been designed specifically for this purpose (see Table 3). This is a problem highlighted by interest groups and wildlife management specialists; namely, that several laws and a number of government authorities (ministries and government offices) are involved in the wildlife management function, making it a convoluted system lacking in coherence and transparency.[1] These organisations call for the establishment of a new law which sets down fundamental government policy concerning wildlife management (similar in principle to the Basic Environment Law).[2]

Indeed, 'wildlife management' (*yasei dōbutsu kanri* 野生動物保護管理) was not referred to in legislation until the revision of the Wildlife Protection and Hunting Law (*Chōju hogo oyobi shuryō no tekiseika ni kansuru hōritsu* 鳥獣保護及び狩猟の適正化に関する法律) in 1999.[3] This law, which most directly relates to wildlife protection and management, has its origins in a law which controlled hunting, as opposed to one which protected wildlife. Another key law, the Natural Parks Law (*Shizenkōenhō* 自然公園法) was designed primarily to facilitate the establishment and regulation of natural parks for the development of tourism and to bolster regional economies, rather than as a means to manage and protect wildlife and wilderness areas, an emphasis still evident in the wording of the law today. The most recently enacted law relating to wildlife is the Law for the Conservation of Endangered Species of Wild Fauna and Flora (*Zetsumetsu no osore no aru yasei dōbutsu no shu no hozon ni kansuru hōritsu* 絶滅のおそれのある野生動植物の種の保存に関する法律), which was passed in 1992 shortly before two international environmental conferences were to be held in Japan.

Table 3: Summary of laws and developments relating to wildlife conservation in Japan

Year	Development
1918	Hunting Law (originally enacted in 1895) revised (designates game species, hunting districts managed by government established)
1931	National Parks Law comes into effect
1934	First national parks established
1947	Hunting Law revised (half of bird species, several mammal species removed from game list)
1957	Natural Parks Law comes into effect (regulates national and prefectural natural parks, and establishes a natural park system)
1963	Hunting Law renamed to Wildlife Protection and Hunting Law (designates areas in which hunting is temporarily prohibited, introduces prefectural hunting license system)
1971	Environment Agency established
1972	Nature Conservation Law enacted (Establishes policy and framework for the preservation of natural areas, in conjunction with Natural Parks Law, Wildlife Protection and Hunting Law etc)
1992	Law for the Conservation of Endangered Species of Wild Fauna and Flora enacted
1993	Japan becomes signatory to the United Nations Convention on Biological Diversity
1995	National Biodiversity Strategy adopted (outlines basic principles for conserving biodiversity)
1999	Environmental Impact Assessment Law comes into effect Wildlife Protection and Hunting Law revised and Specific Wildlife Management Planning System introduced
2001	Ministry of the Environment established (restructured from the Environment Agency)

(source: Ishikawa, 2001)

6.2.1 The Wildlife Protection and Hunting Law

As noted, one of the key laws regulating wildlife management is the Wildlife Protection and Hunting Law, which was revised from the Hunting Law in 1963. The law's stated purposes are 'to protect birds and mammals, to increase populations of birds and mammals, and to control pests through the implementation of wildlife protection projects and hunting controls'.[4] As its original name suggests, the law's initial purpose was the regulation of hunting, and this continues to be its predominant function. The law gives the Ministry of the Environment the authority to designate game species, of which there are about 50. Game animals include Hokkaidō brown bears, Asiatic black bears, wild boar (*Sus leucomystax)*, deer (*Cervus nippon nippon);* foxes (*Vulpes vulpes)*, hares (*Lepus brachyurus)*, squirrels (*Tamias sibiricus)*, badgers (*Procyon lotor)*, raccoon dogs (*Nyctereutes procyonoides)*, and minks (*Mustela vison*).[5] All other wild animals are designated as protected species under the law. The law also designates areas in which hunting is prohibited, regulates hunting periods, harvest rates, and hunting methods. One key characteristic of the legislation is that it designates *non*-hunting zones, as opposed to *hunting* zones: thus, in Japan hunting is permitted in any area which is not specifically designated as a non-hunting zone.

There are two key issues regarding the function of this law in protecting animals. Firstly, while it is illegal to hunt all non-game species under the law, this does not mean that these animals are comprehensively protected. Inadequate monitoring means that poaching is relatively common in relation to species such as the bear, and that poachers are rarely apprehended. Secondly, and more

importantly, though protected from hunting, these species are not protected from the threat of habitat destruction, and it will be this, rather than over-hunting, which will lead most endangered species further towards extinction. Thirdly, some species are designated as games species despite the fact that they are either endangered or extinct over a substantial part of their range. The Asiatic black bear is a case in point. The Asiatic black bear has five isolated populations extending over the west of Japan which are designated as either extinct or endangered according to the Ministry of Environment's own criteria (see Figure 9 for distribution map), but under the law the bear is designated as a game species. In prefectures where it is either designated as endangered or thought to be extinct, prefectural regulations prohibit or limit hunting. However, if the bear is thought to present a risk to human safety or to be responsible for pestilence, it may be culled (control-killed) as a pest.

Beyond its designation of wildlife as non-game species, the Wildlife Protection and Hunting Law provides for some additional, if limited, protection for wildlife. The law gives the Minister of the Environment or the relevant prefectural governor the authority to designate areas as 'wildlife protection zones' (*chōjū hogoku*鳥獣保護区), in which game hunting of wildlife is prohibited. (Note that the control-killing of wildlife considered to be pests is still permitted in these areas.) As of 2003, there were 56 nationally designated wildlife protection zones and 3,796 prefecturally designated zones. Wildlife in these zones is protected from hunting, but not from habitat loss or degradation: land-reclamation, forestry and other forms of economic activity are still permitted.

Additional protection against habitat destruction is provided by 'special protection zones' (*tokubetsu hogochiku* 特別保護地区), which may be designated within these 'wildlife protection zones'. In these zones, all construction, land-development, reclamation projects, cutting of forest, mining and other industrial activities require the prior consent of the Minister or prefectural governor. However, the Minister or prefectural governor can only withhold his or her consent where the action(s) in question 'will bring about serious harm to wildlife or to wildlife habitat' (though it is not clear by whom, and by what criteria, this is judged). In all other cases, the Minister or prefectural governor is obliged to give his or her consent. Because the 'special protection zones' involve comparably stringent restrictions on the use of land, land-owners and users tend to oppose any applications for their designation. Consequently, as of 1999, only about 23 per cent of nationally designated wildlife protection zones had been designated as special protection zones, while only six per cent of prefecturally designated wildlife protection zones had been designated as special protection zones.[6]

An understanding of the historical development of Wildlife Protection and Hunting Law is useful in order to understand the nature of the law today, as much of its history is still reflected in the current law. The Wildlife Protection and Hunting Law has its origins in the hunting controls which were

established to protect the hunting grounds used by the feudal lords in medieval Japan. In 1873, the first hunting regulations were enacted, primarily to control the use of guns. These regulations included an annual firearms licensing system, and set down hunting seasons and the areas in which hunting could take place, but made no restrictions on what species could be hunted. However, as the populations of some species became increasingly depleted, there was a transition to the idea of 'conserving' species which had until then been regarded solely as 'game'. In 1892, 14 bird species and one animal became protected animals by imperial edict. The number of protected animals was subsequently increased to 22 in 1901, and 60 in 1910.[7]

Despite the increased legal protection for wildlife, the populations of many species continued their decline. This was as a consequence of habitat destruction (primarily the reclamation of wetlands and the cutting of natural forest); an increase in hunter numbers; and technological developments in traps, guns and other hunting equipment. In 1918, a fundamental change was made to the Hunting Law: specific species were designated as game species—a departure from the previous system, whereby all species had been regarded as 'game' unless designated otherwise. The revised law also introduced a mechanism for prohibiting or limiting the hunting of game animals as necessary. In 1950, in another important change, the authority to limit or prohibit the hunting of specific wildlife, previously limited to the Minister of Agriculture and Forestry, was revised to include prefectural governors.[8]

However, the downward slide in wildlife populations continued, and in 1963 there was another major revision of the Hunting Law. In this revision, greater emphasis was placed on wildlife protection, reflected also in a change of name: to the Wildlife Protection and Hunting Law. In 1971, responsibility for wildlife conservation was passed from the Forestry Agency (within the then Ministry of the Agriculture and Forestry) to the newly established Environment Agency.[9] This development was not as positive for wildlife protection as it may appear, as the Environment Agency had very little power within government—especially in comparison to the ministries whose responsibilities lay in the utilisation of natural resources for development, such as the then Ministry of Agriculture and Forestry, the Ministry of Construction, and the Ministry of Land, Infrastructure and Transport. Nevertheless, concomitant with the Environment Agency taking over responsibility for nature conservation, there was inherently less internal conflict of interest concerning core areas of jurisdiction than was previously the case with the Ministry of Agriculture and Forestry. Nevertheless, a prime area of conflict continues to be that between utilisation and conservation of forest lands: the economic interest of what is now the Ministry of Agriculture, Forestry and Fisheries lies in utilising and generating maximum profit from forested lands, which is at odds with the conservation function of national parks.

The prima facie strengthening of these wildlife protection mechanisms proved little match for the 'development' of wildlife habitat which was occurring at a rapid pace over this period. [10] The clearing of indigenous forest; extensive afforestation with coniferous species; dam and road construction; reclamation of wetlands and bays; the building of resorts, golf courses and other facilities all threatened important habitats for wildlife. The Resort Law, enacted in 1987, only compounded the problem of disappearing wildlife habitat: McCormack (1996) states for example that during the late 1980s and early 1990s, 26.7 per cent of Kyūshū's inland area was incorporated into plans for 135 resorts, including 100 golf courses.[11] Similarly, ski fields sprang up in many previously undeveloped mountain areas.

Ironically, this rapid loss in wildlife habitat was to lead to a policy shift from wildlife 'conservation' to 'management'—in other words, the control of certain 'problematic' wildlife species (*gaijū* 害獣) through culling. As habitat decreased or became more fragmented, the incidence of agricultural and forestry pestilence and human injury caused by wildlife such as bears, serow, deer, and monkeys (*Macaca fuscata*) increased exponentially from the 1980s. This led to calls to weaken the restrictions on hunting and reduce the populations of wildlife causing these problems. At the same time, researchers and academics urged the government to move from what was viewed as an archaic hunting system to a system of wildlife management based on scientific knowledge. Finally, the Environmental Agency capitulated, and the Wildlife Protection and Hunting Law was again revised. The revision included the introduction of The Specific Wildlife Planning System in 1999 (detailed below), which allowed for the regulation of populations of wildlife species causing pestilence, and the devolution of authority for regulating hunting and wildlife management to prefectural governments.[12]

This leads to the question of the role of natural parks, which encompass important areas of wildlife habitat, in the wildlife conservation function. This aspect will be examined in the next section.

6.2.2 The development of the national park system

As of 2002, there were 28 national parks (*kokuritsu kōen* 国立公園), 55 quasi-national parks (*kokutei kōen*国定公園), and 308 prefectural nature parks (*todōfuken kōen* 都道府県公園) in Japan, constituting about 14 per cent of the total national land area.[13] The key law regulating the establishment, administration and use of natural parks in Japan is the Natural Parks Law, which replaced the National Parks Law (*Kokuritsukōenhō* 国立公園法) in 1957. The original law, the National Parks Law, came into effect in 1931 and was the first law relating to national parks in Japan. Its aim was to '…preserve areas of outstanding beauty, while contributing towards the health, recreation and cultural education of Japanese citizens'.[14] Japan's first national parks were established in 1934, closely followed by several others, and by 1936 twelve parks had been established. While the

objective of these parks was, ostensibly, to preserve nature, they were for the most part selected for their general appeal as places of scenic beauty and their potential to contribute to national prestige and tourism, rather than for their ecological value. The two exceptions to this general rule were the Akan and Daisetusan Parks of Hokkaidō, which were selected because they were places characterised by primeval nature regarded as worthy of preservation.[15]

After the Second World War, calls to create more national parks for recreation and tourism escalated. However, there were few places left which fulfilled the criteria set down in the National Parks Law (discussed below). A system was therefore adopted whereby nationally designated 'quasi-national parks' could be established, particularly near the main cities, for the primary purpose of recreation. These became officially recognised by law in 1957, when the Natural Parks Law came into effect. This new law provided for three types of natural park: national parks 国立公園, quasi-national parks 国定公園, and prefectural nature parks 都道府県 and became the basis of the current park system.[16] The Natural Parks Law was enacted against a background of government initiatives and policies to encourage the development of the tourism and leisure industry. Natural parks were seen as an important aid in the development of tourism, particularly after World War Two when a key priority was the rebuilding of the economy.

The emphasis on scenic beauty and recreational value in the legislative framework governing natural parks is underlined in the selection criteria for parks set out in the Natural Parks Law. For example, Criterion One states: 'The area must be representative of Japanese scenic landscapes, while at the same time boasting outstanding natural scenery of a world class standard'. Criterion Four states: 'The area must be suitable for utilisation by a large number of people, as judged by its accessibility; capacity to accommodate a large number of visitors; variety of uses; and its special characteristics.'[17] As can be seen therefore, the legislative framework is geared for utilisation and development, as opposed to conservation of natural environments. Many areas, such as the Shiga Heights National Park, have undergone unprecedented development, including the construction of numerous hotels and ski resorts, since being designated a national park.[18]

A further weakness of the Japanese natural park system is that the Ministry of the Environment (formerly the Environmental Agency) does not have sole jurisdiction over these areas. Areas designated as natural parks may include private land, or areas over which the Ministry of Agriculture and Forestry or Ministry of Construction have primary jurisdiction. Conflicts of interest between agencies which have an economic interest in a park (e.g., through mining and forestry) and the Ministry of the Environment are common, further compromising the conservation function of natural parks.

On its establishment in 1972, the Environmental Agency attempted to strengthen the conservation function of the national parks, by way of the Nature Conservation Act, modelled on the United States' Wilderness Act 1964. This law, which was enacted in 1972, was intended to be an over-arching law, bringing a systematic unity to all the legislation concerning the preservation of the natural environment. In particular, it would have seen greater protection from development and industrial activity for national and natural parks. However, due to fierce opposition from the then Ministry of Agriculture and Forestry and the Ministry of Construction, the law was to become watered down to such an extent that most of its original intention was lost. For instance, the Natural Parks Law remained in place (rather than the Natural Environment Preservation Law, which was intended to supersede it); forest reserves were not designated as primeval environment preservation areas as it was originally proposed; forestry activity continued to be permissable within natural environment preservation areas (*Shizen kankyō hozen chiiki* 自然環境保全地域); and city reserves (*Ryokuchikankyō hozen chiku* 緑地環境保全地区) came under the jurisdiction of the Ministry of Construction.[19]

The Natural Park Law was revised in 2002, in response to ongoing criticism that it unduly emphasised the value and preservation of scenic beauty, while largely neglecting ecosystem protection and species diversity. The following clause was inserted: 'Government and public organisations must take into consideration the fact that the conservation of the plants and animals which inhabit, breed and develop in natural parks is important to the preservation of the natural park's scenic value, and with the preservation of the diversity of both the ecosystems and the living things of the park as an underlying principle, should take measures to preserve the scenic value of the natural park'.[20] While this provision urges government and public organisations to take the preservation of ecosystem and biological diversity into consideration, it does not specify any process or standards by which organisations should do so, nor does it stipulate any penalties for failing to do so. Furthermore, as can be seen from the wording of this clause, the preservation of ecosystem and biological diversity is only to be taken into consideration *because it is important to the overall scenic value of the park*, not because it is important *in itself*. This reflects the position that the preservation of the scenic value of natural parks is still paramount under the law. Thus, while the significance of the addition of this provision should not be dismissed, the overall aim of the law (to utilise natural parks for maximum public benefit) remains unchanged.

Few areas in Japan remain which fulfil the narrow criteria set out for national parks (Kushiro Marshlands in Hokkaidō became the last national park to be designated in 1987). There have been efforts to designate more quasi-national and prefectural nature parks in order to preserve areas of

nature closer to urban centres, but this has met with the resistance of government agencies and ministries such as the Forestry Agency; the Ministry of Land, Infrastructure and Transport; the Ministry of Agriculture, Forestry and Fisheries; as well as private or corporate landowners—groups which tend to resist controls being put on the use of the land over which they have ownership or jurisdiction. As a consequence, little progress has been made in the expansion of natural parklands.

There are a number of issues relating to the designation of natural parks, particularly concerning their potential to support wildlife conservation. Firstly, as has been seen from the wording of the law and the criteria it sets out for natural parks, the scenic beauty of an area is the foremost consideration when selecting a candidate for designation. If this criterion is applied strictly, an area which is valuable from an ecological point of view but which is not perceived as 'scenic' is unlikely to be selected as a natural park.

Secondly, natural parks are expected to fulfil two primary, but conflicting, demands: utilisation on the one hand and preservation of 'nature' on the other. In fact, as was discussed above, one of the main criteria for the selection of a natural park emphasises that a candidate's suitability is based on such considerations as its accessibility from the main urban centres, its capacity to accommodate a large number of visitors, and its suitability for recreational use. This clearly demonstrates the emphasis placed on utilisation and the potential for conflict with its nature conservation function. This aspect has particularly serious implications for potentially dangerous species such as the bear. Because parks exist primarily for the purpose of tourism, the visitor's pleasure and safety is tantamount. Where a bear is observed, and believed to have the potential to threaten visitor safety, it will be the bear, rather than the visitors, which will be removed ('removal' usually involving culling).

Another issue is the prevalence of industrial activity which takes place both within, and adjacent to, natural parks. It is not uncommon for clear-cutting of forest, land reclamation and quarrying to be carried out on land immediately adjacent to natural parks, and these activities have adversely affected Rishiri-Rebun-Sarobetsu, Kushiro Marshlands and Iriomote National Parks.[21] Even within the parks themselves, there are only limited controls on industrial activities such as forestry, mining and quarrying—and on the contrary, the building of infrastructure such as roads or leisure and tourist facilities has been actively encouraged by the government, because they enhance the accessibility and utilisation of the parks.

There is provision under the Natural Parks Law to designate areas of natural parks as 'special protection zones',[22] or type one, two or three 'special areas', designations which offer greater protection for wildlife and wildlife habitat. About thirteen per cent of the total park area of national parks (not including quasi-national parks) is designated as 'special protection zones', the zoning

which offers the highest level of habitat protection. However, this area is for the most part made up of high altitude areas above forest cover, and therefore of limited biodiversity. Few areas of higher biodiversity, such as wetlands or lowland forest areas have been designated.[23]

The lack of emphasis on wildlife conservation is not only reflected in the designation of parks, but their management also: in 2001, Ishikawa reported that Japan had a total of 210 park management staff (including rangers) for its 28 national parks, and most of these were primarily engaged in administrative tasks such as the issuing of permits. This amounted to one staff member per 10,000 hectares of national park area, in comparison to 1,488 in the United States, 1,968 in New Zealand, 2,600 in Kenya and 930 in South Korea.[24]

6.2.3 The Law for the Conservation of Endangered Species of Wild Fauna and Flora

The Law for the Conservation of Endangered Species of Wild Fauna and Flora was introduced in 1992. This law has two main purposes: to regulate trade in wildlife in accordance with the Convention on International Trade in Endangered Species (CITES, otherwise known as the Washington Treaty), and to conserve endangered species within Japan by way of the designation and preservation of habitat. The law was hastily passed in 1992 in anticipation of the Earth Summit and the CITES conference, both held in Kyoto that year. Until that time, Japan had no legislation concerning the management of endangered species.

In terms of its species protection functions, the law allows for the designation of 'natural habitat conservation areas' (*seisokuchitō hogoku* 生息地等保護区) and establishes guidelines for the rehabilitation of endangered natural habitats.[25] To date, only eight habitat conservation areas have been designated: for a species of snake, salamander, fish, and two species of plants and insects respectively.[26] For larger species such as mammals and birds, no areas have yet been designated. One primary shortcoming of the current system is that of all the 1,567 species (both animals and plants) designated as endangered in the Ministry of the Environment 'Red Data List' (see Chapter Five), only 62 have been designated as endangered species under this law, and only two of them mammals—the Tsushima cat (*Felis euptilura*), and the Iriomote cat (*Mayailurus iriomotensis*). Even in the case of these two species, their designation as endangered is nominal only, as they are offered no additional protection over and above that provided by their status as 'non-game species' under the Wildlife Protection and Hunting Law. For instance, the Iriomote wild cat has an estimated population of fewer than 100 individuals, limited to the forests of Iriomote Island.[27] However, as its habitat has not been designated as a 'natural habitat conservation area' under the law, there is currently no legal barrier to its continued development and degradation.

Additionally, the law is criticised by nature conservation groups for not offering any protection for species whose local populations have become isolated and are in real danger of becoming extinct, such as is the case with bear populations in western Japan.[28] Furthermore, the system of setting up natural habitat conservation areas for the conservation of individual species has been criticised by conservationists for placing too much emphasis on protecting individual species rather than ecosystems as a whole, which support many species.[29]

This law has no relevance to the management of bears, for they are not designated as nationally endangered species under the law. Even if they were to be, the implementation of the law to date has been such that it has been ineffective in securing habitat conservation areas for mammals or other larger species of wildlife. It is therefore unlikely that an animal with as large a range as the bear will be subject to the provisions for habitat conservation that this law can make, at least in the foreseeable future.

6.2.4 The Specific Wildlife Management Planning System

In 1999, a new system was established within the framework of the Wildlife Protection and Hunting Law, known as the The Specific Wildlife Management Planning System (*Tokutei chōjū hogokanri keikaku seido* 特定鳥獣保護管理計画制度). The system was established against the background of a general policy shift towards 'decentralisation' (*chihōbunken* 地方分権) driven by central government; this system allows each prefectural and metropolitan government to formulate and implement plans for wildlife management in their region. A Specific Wildlife Management Plan is a plan targeting specified species, the regional populations of which are displaying either marked increases or decreases. (In the former case, the species is often classified as a pest, while in the latter case the species can be classified as locally endangered, and in some cases, such as the bear, a species is simultaneously classified both as endangered and as a pest.) The overall objective of the plan is the long-term stability and viability of regional populations. The plan is to be formulated by each administrative district (prefecture), and is intended to regulate hunting, incorporate measures to preserve natural habitat, and prevent wildlife conflict and pestilence. The establishment and implementation of such plans is entirely voluntary and is not mandated by central government.[30]

As noted, the system is intended to target species which are experiencing either extreme increases or extreme declines in their population in a given prefectural area. However in reality, the majority of plans established to date are for species which are either experiencing increases in populations, or which are the cause of pestilence. In the latter case, while populations may in fact be in decline, they are often *perceived* as increasing, particularly by those engaged in forestry or agriculture, because the incidence of sightings and pestilence is increasing. The bear is a case in point, particularly in western Japan, where forestry damage is prevalent.

The specific wildlife management planning system has been criticised by non-government organisations (NGOs) for a number of reasons. As has been noted, the system is voluntary and there is no penalty for failing to put a plan in place. There is also the perception that by establishing this regional system, central government is effectively devolving the problem of wildlife management to prefectural authorities and thereby absolving itself of responsibility.[31] Furthermore, prefectural authorities are not equipped with additional budgets, training, or resources to implement a plan effectively. This means that while many prefectures may have established plans, they may not necessarily be able to execute them. In addition, the lack of research, scientific data or common understanding among researchers and government officials regarding aspects such as the minimum viable populations (MVP) of species, a concept fundamental to a wildlife management system, also undermines the effectiveness of the system.[32]

A further barrier to effective wildlife management systems is the lack of understanding of wildlife management among the general populace. As Hatakeyama (2005) points out, wildlife management is concerned with balancing the ecological needs of a species against the economic and social needs of society. But given the current level of understanding among the general public, there is a danger that the public demand for the culling of certain species may continue until the species falls below the MVP, particularly in the case of potentially dangerous animals such as the bear. [33]

Another key problem is that the concepts and ideals underpinning 'biodiversity' are not yet part of the common vocabulary, particularly in the rural areas where wildlife management is a major issue. Thus, while the Ministry of the Environment has created a Biodiversity Strategy based on the 1992 Convention on Biological Diversity, the concepts fundamental to this document are neither understood nor accepted by rural people who are faced with wildlife issues. In rural areas, emphasis is placed on protecting the people's 'assets' (*zaisan* 財産) and therefore, the culling of problematic wildlife becomes the foremost priority. Hazumi (2005) sees this as one of the reasons why the wildlife planning system has failed to be effective in practice. [34]

6.3 Wildlife management in practice—the fissure between legislation and reality

Of all issues faced by wildlife management practitioners in Japan, perhaps the most central and fundamental is the gap between the legislation and what occurs in practice. For example, as stated above, the Law for the Protection of Endangered Species of Flora and Fauna designates species which are endangered, and sets out measures for their protection. But, as was seen, only a small handful of the species designated as endangered under the law actually have any legal protection for their habitats. Many more species are not designated as endangered under the law, though wildlife conservationists argue that they should be.

The Wildlife Hunting and Protection Law sets out what forms of hunting and what types of traps are legal, and prohibits the use of other hunting methods and traps. However, central government does not provide the resources for prefectural or municipal governments to carry out patrolling and monitoring activities to ensure the law is abided by. Effectively, therefore, a person can flout the law (by using illegal traps, hunting outside the hunting season, hunting non-game species and so on) with little fear of prosecution.

Furthermore, as was discussed above, the Ministry of the Environment has delegated the responsibility for management of wildlife to prefectural governments, but prefectures only have jurisdiction to manage populations within their prefectural borders. This is clearly problematic because wildlife is oblivious to administrative boundaries, and the range of a larger species such as the bear may extend over two or more prefectures. While one prefecture may be proactive in its management of a species, its efforts may be compromised by a neighbouring prefecture which has no management strategy or has a different management approach. Crucial aspects of habitat protection such as green corridors[35] are limited in their effectiveness without inter-prefectural cooperation.[36]

The effect of this localised approach to wildlife management is that a species may be recognised as endangered, but little is actually done to prevent its further decline. A clear example of the unwillingness and ineptitude demonstrated by central government in providing any leadership in the management of bears came in 2006. In this year, described by many as a crisis in bear management and conservation owing to the unprecedented level of bear cullings and human-bear conflict, the Ministry of the Environment did nothing more that publish an impressively entitled 'Emergency Response Manual' on its website 'to inform both the public and municipalities of measures to prevent bear pestilence and incidents'.[37] In reality, this was simply a collection of web-pages containing information already readily available on many prefectural websites. This lack of central government involvement and leadership in the conservation and management of bears is a source of criticism from wildlife conservation organisations within Japan. For example, in October 2004, ALIVE (All Life In a Viable Environment; in Japanese, *Chikyū Seibutsu Kyōkai* 地球生物会議), an NGO concerned with wildlife conservation, petitioned the Ministry of the Environment to adopt a national approach to the conservation and management of bears, including the establishment of a 'national conservation and management plan', in place of its current approach of delegating this responsibility to the prefectural governments.[38]

The management of natural parks also reflects the fissure between provisions of the legislation and the constraints of reality. In Japan, only a small number of park staff are employed to manage the nation's natural parks. This situation has been further exacerbated by recent restructuring of the

Ministry of the Environment: previously, management staff were primarily assigned to administrative duties such as processing permits, but following restructuring in 1999, staff are now responsible for protection and breeding programmes for designated species and the management of wildlife protection areas in accordance with the Law for the Conservation of Endangered Species of Wild Fauna and Flora (1992). However, in reality, staff generally do not have time for wildlife management tasks such as environmental surveys, monitoring activities or conservation education, and volunteers need to be relied on for these tasks.[39] These problems are exemplified by the Shirakami conservation area (located in Akita and Aomori Prefectures), which encompasses the largest virgin beech forest in Japan and has been designated a world heritage site by UNESCO on account of its unique flora and fauna.[40] Owing to lack of adequate monitoring, problems have arisen with visitors leaving garbage in the forest, lighting fires, and entering specially protected areas where entry is prohibited.[41] The inability to monitor park use at this fundamental level must necessarily have an impact on the effectiveness of parks as nature preservation areas.

The gap between legislation and reality is further reflected in the specific wildlife management planning system. When the law was first introduced, prefectural governments were in some cases provided with considerable outside expertise and input (both from the Ministry of the Environment and other organisations) to assist with the management plan formulation process, and as a result, many prefectures produced wildlife management plans. However, when faced with the implementation of the plans, prefectural governments found that they were provided with no further outside expertise or assistance, and they had neither the budget nor the staff with specialist expertise to facilitate the implementation process.[42] For example, fundamental to implementing a plan is ascertaining the population of a particular species in one's jurisdiction. This involves making an informed estimate based on sampling and any other available data, a process requiring a sizeable team of staff with scientific and practical expertise, equipped with the required technology, equipment and facilities. However, many prefectures do not have the resources to complete even this process, which is vital for obtaining a baseline for subsequent monitoring and management. Furthermore, the successful implementation of a plan involves population monitoring, necessary to ascertain the effectiveness of measures in reaching the prescribed targets. So dire is this lack of resourcing for these fundamental wildlife management tasks, one expert has suggested that rather than attempt to make population estimates, prefectural governments should instead focus what meagre budget and resources they have on pestilence prevention measures alone.[43] Given these circumstances, the planning system is falling well short of its legislative goals.

The lack of financial resources is clearly a major problem preventing prefectural governments from effectively carrying out wildlife management in their jurisdiction, but even this is outweighed in magnitude by the lack of specialist personnel available to carry out wildlife management functions.

According to a survey of prefectural governments, this was the key problem highlighted in respect of their wildlife management responsibilities.[44] Few wildlife specialists (individuals qualified or trained in wildlife biology, wildlife management or related fields) are employed by prefectural or municipal government offices dealing with wildlife issues. Staff who deal with wildlife management are by and large untrained in the field, and are, like other government employees, rotated to other roles within a few years. This is not conducive to the wildlife management function, which requires long-term research, planning and focus, and the input of specialists. As a result, valuable experience tends to be lost and there is a lack of continuity in management and planning. In addition, officials entrusted with wildlife management tasks tend to lack authority and are therefore limited in what they can achieve, especially if it is beyond the framework of existing policy and practice. This situation has been exacerbated by the economic recession of the 1990s and the trend towards the 'downsizing' and 'rationalising' of administrative bodies in an effort to cut costs.

Wildlife experts express some frustration that central government seems reluctant to divert even a fraction of the immense amounts of money spent on public works annually to wildlife management, and in particular for the training and deployment of adequate staffing. For example, in his submission to the Diet Committee on the Environment in 2006, Hazumi stated:

> We only ask that a little of the budget that was in the past allocated to public works, such as roads and dams, may be diverted to this [wildlife management] field. Habitat and wildlife management are in fact 'public works' or what can be called 'fundamental social maintenance'. We have to build the kind of society which recognises this and invests in this area.[45]

Hazumi also calls on the government to create a specialist wildlife position in the public service. He observes that there are many young people at tertiary institutions studying wildlife biology or related fields, and wishing to work in the areas of nature and wildlife conservation, but as long as there are no positions in these fields, these students move on to other areas. He suggests that by creating these positions in the public service, young people attracted to these roles will act as conduits for the valuable local knowledge and know-how relating to wildlife which exists among farmers, foresters and hunters, particularly in upland areas where people have traditionally lived in close proximity to wildlife (for further discussion of this aspect, see Chapter Eight).[46]

Currently, due to both the lack of resources and skilled staff, and the lack of understanding for alternative strategies among the affected public, the primary strategy for dealing with bear pestilence is culling, which is, as noted, a cause of concern to wildlife experts. Despite these constraints, some prefectures are becoming more proactive in using aversive conditioning techniques, rather than simply culling bears. For example, in 2006, Nagano Prefecture, one of the most proactive prefectures in this respect, re-released 109 bears after using aversive conditioning.[47] However, prefectural

officials report strong resistance to bear relocation among the public, who express concern about the bear returning, or, as in the case of residents in Yamanashi Prefecture, a concern that 'angered bears will return to exact revenge' on them.[48] Again, the resistance among the public can to a large extent be seen as a product of the inability of prefectural governments to provide education and awareness programmes for the public. As a consequence of these difficulties, in 2006, the number of bears culled nationally peaked at unprecedented levels, and bear management reached a crisis point. Wildlife researchers and experts across Japan began to seriously question the future status of the bear if the current approach to its management continues.

It appears that the use of bear traps is a major factor in this high culling rate. Bear traps yield a high rate of capture, and they are simple to make and install. For this reason, many municipal governments have a number of traps which are set after a bear, bear scat or other signs of presence are observed. Miura (2006) notes that in some municipalities, traps are set permanently for an entire year, irrespective to whether there are complaints of bear pestilence. In this way, the use of traps is a highly reactive response to the presence of bears, whether or not damage has been verified. Furthermore, this method of control-killing is entirely 'blind'—there is no process to verify whether or not the bear trapped, and subsequently culled, is the individual causing damage.[49] Wildlife researchers make several recommendations: that the number of bear traps in each municipality should first be audited, then registered and administered by the municipal government (rather than by hunting organisations or individuals); that there be a time-limit placed on how long traps can be set for; and that stricter standards be set by central government (the Wildlife Division of the Ministry of Environment) regulating the use of bear traps. [50]

Inadequately staffed, prefectural and municipal governments rely on volunteers, non-governmental organisations and private organisations to fulfil fundamental wildlife management functions. These functions include trapping and culling (hunters' associations); data-collection and research such as tracking and population studies (NGOs and research bodies such as universities); and public awareness and educational programmes (NGOs, zoos, etc).[51] Volunteers and organisations are not normally remunerated for the tasks they fulfil. For instance, even hunters, who are integral to the wildlife management function, are provided only a small sum as remuneration for call-outs to find, trap or cull bears. Remuneration is insufficient to cover lost income, transport and other related costs.

Hunters are especially pivotal to the wildlife management operations of municipal governments: not only do they perform essential tasks, but they are also a source of valuable knowledge and information regarding wildlife ecology, behaviour and habitat. However, even this pool of expertise is declining rapidly. Since peaking in the 1970s at 500,000, the number of licensed hunters had fallen to just over 200,000 in 2000 (see Figure 15).[52] In addition, the overwhelming majority of hunters (about

90 per cent) are aged forty years or above, and very few people of younger age groups are taking up hunting. One wildlife management expert predicts that in ten years there will be very few hunters for municipal governments to call on to deal with problematic animals, and suggests that central government should act immediately to avoid a crisis in a decade's time.[53]

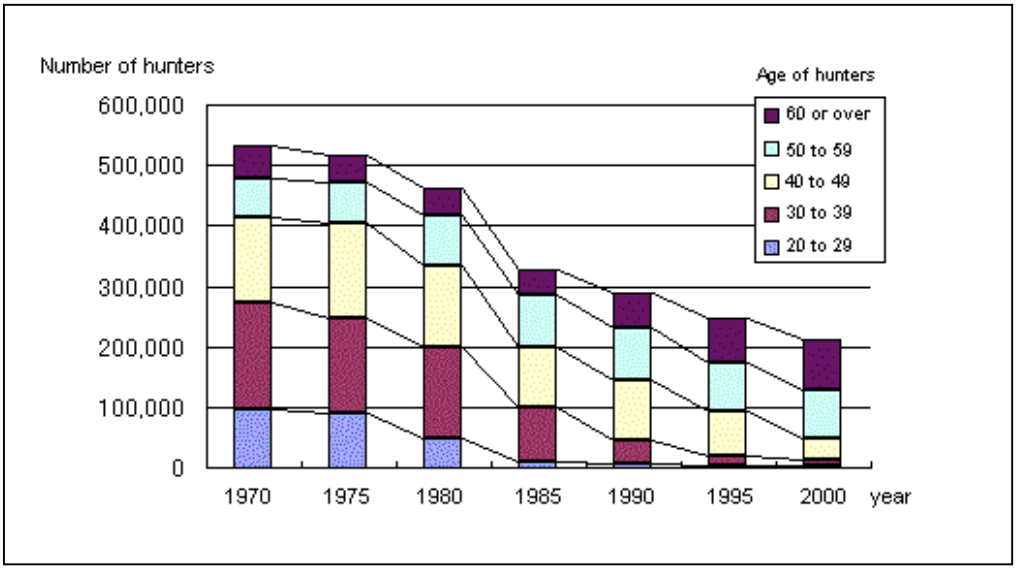

Figure 15: Hunters by age group
Source: Ministry of the Environment

6.4 The role of non-governmental organisations and research organisations

There are a number of non-governmental organisations (NGOs), research organisations, and wildlife management organisations which have a strong focus on the management and conservation of bears. Few NGOs deal exclusively with the issue of bear conservation—most having a broader focus on wildlife or nature conservation generally (and are often international, rather than domestic in focus). For example, the NGOs ALIVE (*Chikyū Seibutsu Kyōkai* 地球生物会議), and The Nature Conservation Society of Japan (*Nihon Shizen Hogo Kyōkai* 日本自然保護協会) are two organisations which have lobbied for revisions to legislation and more central government involvement and support for regional bear management efforts. The Japan Wildlife Conservation Society (*Yasei Seibutsu Honzenron Kenkyūkai* 野生生物保全論研究会) and TRAFFIC East Asia–Japan have also focused on the bear issue from time to time. However, this is only one of many issues with which these organisations deal, and their lobbying power and influence upon public opinion is negligible.

One of the few organisations which deal exclusively with bear conservation is the Japan Bear and Forest Association (*Nihon Kuma Mori Kyōkai* 日本熊森協会), which is based in Hyōgo Prefecture in central Honshū. This is a volunteer-based organisation the activities of which include environmental

education in schools and initiatives to replant areas with mixed broadleaf trees. It was widely criticised in 2004 for its initiation of a project whereby it encouraged schools, businesses and individuals nationwide to collect acorns from their local parks, and send them to the association which then deposited the acorns in large mounds in the forest for 'hungry bears to eat'. Criticism came predominantly from wildlife researchers and other NGOs who felt that the initiative was both naïve and potentially detrimental in its impacts, including the potential for bears to become conditioned to human food sources, and the risk that non-indigenous or non-local species of trees would become dispersed through natural forest.[54] To many 'serious bear researchers', this organisation is seen as well-meaning but ill-informed.

An NGO which is held in higher regard by the bear research community is Picchio, based in Karuizawa, a resort town in a mountainous region of Nagano Prefecture. This organisation has been pioneering in its use of non-lethal methods for dealing with, and preventing bear conflict, including the use of Karelian bear dogs, specially trained dogs used to repel bears from human occupied areas. They are also active in educative initiatives. However, like many Japanese NGOs, their activities are limited to the geographical area in which they are based.

An organisation which has had a broader geographical impact on bear management nationally is the Institute for Asiatic Black Bear Research and Preservation (*Nihon Tsukinowaguma Kenkyūjo* 日本ツキノワグマ研究所). While grandly named an 'institute', this organisation in fact comprises one individual, who has extensively researched and written about bear ecology and the prevention of human-bear conflict. Over many years he has provided advice and guidance to prefectural and municipal governments, especially in the Western Honshū region.

While a private company, rather than an NGO, the Tokyo-based Wildlife Management Office *Yasei Dōbutsu Hogo Kanri Jimusho* 野生動物保護管理事務所, is pivotal to many government-based bear (and other wildlife) management initiatives, both central and regional. Additionally, Mr Hazumi, the founder of the company, is regularly asked to sit on Diet Environment Committee sessions to consider revisions to legislation and provide his input on government-led initiatives. The organisation's activities are mainly research oriented, its clients generally being central or prefectural governments which require surveys or data-analysis of wildlife populations and distribution, or other aspects of ecology such as reproduction or diet. The organisation also provides guidance and support for wildlife damage prevention trials and designs and prepares materials for awareness campaigns.

The Japan Bear Network is an umbrella group of researchers, scholars, NGO members or members of the public who are interested in bear research, conservation and management. It organises research

forums, workshops and symposiums, including the International Bear Association Conference held in Karuizawa in October 2006. It is primarily a network for information-sharing, and has little involvement in 'on the ground' initiatives.

In addition to those mentioned here, there are numerous other local groups which have as their goal 'coexistence with bears', but generally these organisations have little impact outside their localised area of activity.

Few universities have a wildlife management programme, though some offer subjects in the area as a part of veterinary science. Students wishing to study wildlife management will generally find that veterinary science is their only option. Even for students who manage to complete a course in wildlife management, options for employment are extremely limited. Nevertheless, many universities have very active student-driven 'research groups' focusing on bear research and conservation, and a number of university lecturers are actively involved in the area as a personal interest (often via the Japan Bear Network, outlined above).

6.5 Summary and conclusions

It is continued habitat degradation and destruction, rather than hunting, that poses the greatest threat to endangered species in Japan today. However, none of the key laws surveyed provides sufficient protection to halt the continued decline of many endangered species, including bears. From a practical standpoint, the law which relates most directly to wildlife protection and management is the Wildlife Protection and Hunting Law, one of the stated purposes of which is to protect, and indeed increase, populations of birds and mammals. However, this law's emphasis is on the control of hunting—very little provision is made for the protection of habitat. As noted, though a species such as the bear may be protected under this law (though not necessarily in practice) from illegal hunting, no provision is made to protect its habitat.

The Natural Parks Law was designed primarily to facilitate the establishment of natural parks for the development of tourism and to bolster regional economies, rather than as a means to manage and protect wildlife and wilderness areas. In reality, this means that where the two key purposes of natural parks—utilisation and conservation—compete, it is usually utilisation which is prioritised. The current law does not provide a high level of protection against environmentally destructive activities such as forestry, infrastructural development and mining, within, or immediately adjacent to, parks, and this situation is unlikely to change significantly in the short or medium term, given the system of jurisdiction and ownership for natural parks.

As a tool for the conservation of endangered species, the Law for the Conservation of Endangered Species of Wild Fauna and Flora has been extremely limited in its effectiveness. This is due to the small number of habitats it has actually protected (eight so far), none of which were habitats for birds, mammals or creatures with larger ranges. The law brings no additional protection for the bear, which is not considered as endangered under Japanese legislation.

A key problem highlighted in the foregoing discussion is the fissure between legislation and wildlife management in practice. In recent years, the government has transferred much of the responsibility for wildlife management (other than that of the most endangered species) to prefectural governments, which are generally ill-equipped for this function. Bears, having large ranges, require a regional, rather than a local approach to their management. Furthermore, bear monitoring, pestilence prevention measures, the policing of hunting activities, and public education initiatives all require substantial resources, both in terms of funds and personnel, which are completely inadequate at a prefectural level. Hunters, a group of people who volunteer their services for the wildlife management operation, are dwindling in numbers, and Japan may soon be faced with a serious shortage of people willing and able to fulfil this function.

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[1] For example, Yoshida, 2006; Hazumi, 2006.
[2] One organisation has been established specifically to lobby for this purpose: 'The network to establish an effective wildlife protection law' (*Yasei seibutsu hogohō seitei o mezasu zenkoku nettowaaku* 野生生物保護法制定をめざす全国ネットワーク).
[3] Hatakeyama, 2005: 54. Similarly, the Japanese word for ecosystem (*seitaikei* 生態系) was first used in domestic legislation in 1992, when the Law for the Conservation of Endangered Species of Wild Fauna and Flora was enacted.
[4] Ministry of the Environment, n.d.
[5] Hatakeyama, 2005: 253.
[6] Hatakeyama, 2005: 263–4.
[7] Hatakeyama, 2005: 249.
[8] Hatakeyama, 2005: 249–50.
[9] Ishikawa, 2001, 194; Hatakeyama, 2004: 250.
[10] In Japanese, the term *kaihatsu* 開発 ('opening up', or 'development' is used).
[11] McCormack, 1996: 88.
[12] Hatakeyama, 2005: 251.
[13] Japan Statistics Bureau, 2006: 74, 19.
[14] Article 1, National Parks Law.
[15] Hatakeyama, 2005: 205.
[16] Sutherland & Britton, 1980, 6; Hatakeyama, 2005, 207–8.
[17] Hatakeyama, 2005: 209.
[18] Stewart-Smith, 1987: 68–9.
[19] Hatakeyama, 2005: 8.
[20] Natural Parks Law, Article 3, clause 2.
[21] Hatakeyama, 2005: 213.

[22] Though same in name, the 'special protection zones' designated under the Natural Parks Law are distinct from those which can be designated under the Wildlife Protection and Hunting Law, the main difference being that the 'special protection zones' designated under the former law are within the boundaries of national, quasi-national, or prefectural parks, while the latter are designated within nationally or prefecturally designated wildlife protection zones.
[23] Hatakeyama, 2005: 217.
[24] Ishikawa, 2001: 199–200, 203.
[25] Organisation for Economic Cooperation and Development (OECD), 2002: 58.
[26] Hatakeyama, 2005: 270
[27] Nowell & Jackson, 1996: 89.
[28] Nogami (for ALIVE (All Life in a Viable Environment)), 2003.
[29] e.g. Yoshida Masahito 吉田正人, email to author, August 27, 2004; Domoto, 1997.
[30] Ministry of the Environment, 2003: 31.
[31] Hazumi T., personal communication, June 3, 2005 (Kawasaki).
[32] Hatakeyama, 2005: 261.
[33] Hatakeyama, 2005: 261.
[34] Hazumi T., personal communication, June 3, 2005 (Kawasaki).
[35] A green corridor is defined as 'strips of semi-natural habitat connecting wildlife sanctuaries, along which plants and particularly animals can disperse' (Stewart & Hutchings, 1996: 123).
[36] This situation may change in the near future, with the introduction of a new administrative system which would see the merging of the current prefectures into several regional 'states', a system referred to as *dōshūsei* 道州制 in Japanese. For example, under this new system, the six Tōhoku prefectures and Niigata prefecture would merge to form one new state. The new system has the potential to facilitate the establishment of a more regionally integrated system for wildlife management, crucial for larger species such as the bear which have more extensive ranges.
[37] *Asahi Shinbun*, November 7, 2006.
[38] ALIVE, 2004.
[39] Ishikawa, 2001: 199–200.
[40] Environment Agency, 1994a.
[41] Kuroiwa, 2002.
[42] Yoshida, 2006; Hazumi, 2006.
[43] Hazumi, 2006.
[44] Yoshida, 2006.
[45] Hazumi, 2006.
[46] Hazumi, 2006.
[47] *Asahi Shinbun*, October 31, 2006.
[48] *Mainichi Shinbun*, November 22, 2006.
[49] Miura Shingo 三浦慎吾, email to Japanese Bear Network, November 18, 2006.
[50] Miura, email to Japanese Bear Network, November 18, 2006; Fujimura Masaki 藤村正樹, email to Japanese Bear Network, November 21, 2006.
[51] Nature Conservation Society of Japan (NACSJ), 1999.
1999; Hazumi, T., personal communication, June 3, 2005 (Kawasaki).
[52] Ministry of Environment, 2001.
[53] Hazumi, 2006.
[54] See for example Nature Conservation Society of Japan, 2004.

Chapter Seven: The bear—public discourse and perceptions

7.1 Introduction

Through an examination of recent literature, media coverage, personal communications and observations, this chapter will explore the various aspects of the public awareness, perception and discourse of the 'bear problem'. Through this examination, it will be determined whether there are social or geographical patterns evident in the public perceptions of bears. The discourse will also be analysed for its symbolic dimensions.

7.2 Public awareness, perceptions and discourse on human-bear conflict

When discussing Japanese perceptions of the bear in contemporary society, it needs to be emphasised that for the vast majority of Japanese, who live in urban regions, the bear probably seems as remote and as relevant as the African elephant. Though many know something of the brown bear and the fact that it inhabits Hokkaidō, many otherwise well-informed and educated people may not even realise that the Asiatic black bear exists in the wild in Japan. The relatively few urban-dwelling citizens who have seen black bears are likely to have seen them in zoos or 'bear parks', which do little to improve awareness or knowledge of the bear and its ecosystem. Even in 'bear country' (upland Japan), few people have actually seen a bear, due to the creature's generally elusive nature and tendency to avoid encounters with humans.[1]

While in recent decades there has been a lot more coverage of bears in the media, this has been the result of a high occurrence of 'bear incidents' (evidenced by the fact that the majority of reportage concerns such bear 'incidents'), rather than the consequence of a growing interest in the bear itself. Even an individual who is interested and motivated enough to attempt to inform themselves about the bear is likely to be disappointed: the few publications written about the bear have generally been printed by local organisations (such as newspaper companies or museums) in short runs, and rapidly fall out of print, or are available only from the source of publication. Any books that may be available more widely tend to be anecdotal, and designed primarily to entertain, rather than to inform. Some literature contains information about the bear which is misleading or incorrect, as discussed in Chapter Three. In the last few years, there have been a few documentary and magazine style television programmes which have focused on the bear and the 'bear problem', and though informative, are likely to have been viewed only by a small audience.[2] As a consequence, the predominant perception of the bear is in its role as a pest and as a potential danger to human beings, and, for the vast majority of urban-dwelling Japanese who are unaffected by such things, even this may only be a passing image from news bulletins or newspaper reports.

At the same time as this 'bear as pest' image is developing, there is a growing consciousness of the bear as a victim of human actions.[3] Knight (2000a) refers to this paradoxical concept as that of the 'endangered pest', an increasingly common phenomenon around the world.[4] It is acknowledged by a growing number of people that the increased frequency of bear incidents is a direct consequence of the destruction of bear habitat. One incident in 2004 highlights the widespread nature and depth of empathy for the bear 'as victim'. The incident occurred in a village in Nagano, when a bear climbed a persimmon tree and proceeded—seemingly oblivious to the commotion erupting around it—to eat the persimmon fruit from the tree (see Figure 16). After several hours of bureaucratic indecision, it was eventually shot in accordance with the instructions of Nagano prefectural officials. Images of the bear in the tree eating persimmons were shown on national television, and after news of the bear being shot was broadcast, the prefectural office was inundated with over 100 emails and telephone calls protesting against the decision. Protests included: 'How could you kill the bear when all it was doing was eating persimmons—it wasn't harming anyone!' and 'Why couldn't you have tranquillised the bear rather than shoot it?' In response, officials explained that their decision was based on a *potential* risk to residents, though this is unlikely to have quelled the wave of criticism.[5] A similar wave of public indignation arose when a sow and two cubs which had repeatedly wandered on to a golf course in a resort town in Iwate Prefecture were shot.[6] Similarly, when a bear was shot in a bamboo grove in Arashiyama in Kyoto in May 2001, the authorities concerned received over fifty phone calls and emails criticising their actions.[7]

Figure 16: A bear in a persimmon tree in Nagano (October 2004). This bear was later shot due to its perceived threat to human safety. One of its front paws was missing, probably an injury from a bear trap (source: Asahi Shinbun)

Empathy for bears comes not only from the urban 'conservationists' and animal protection advocates (referred to, often somewhat disparagingly, by 'real' wildlife experts, as *dōbutsu aigosha* 動物愛護者 in Japanese),[8] but also from hunters, farmers and other rural people who are closer to the 'bear problem'. Hunters called in to 'despatch' bears that have been caught in traps sometimes express frustration that farmers do not show more understanding of the bears' predicament (i.e., shrinking habitat and food supply) and do not do more to protect their crops and livestock, such as by installing electric fences, or by more carefully disposing of crop and other waste.[9] In October 2006, a community in Saitama Prefecture was divided when a bear cub was found wandering in the town. Both the police and town and prefectural authorities recommended that it be culled. It was the local

hunting association which advocated for the bear to be caught and returned to the forest. A representative from the hunting association, called in to attend the incident, appealed: 'Bears are appearing in the town as a result of the cutting and development of the surrounding mountainous forest, therefore this [situation] is also the responsibility of humans. How can I kill this bear when it is doing nothing wrong?'[10] Hunters are often acutely aware of the human causes of bear pestilence. For instance, a hunter in Tōno (Iwate Prefecture) explains that he rarely saw any bear damage before 1979, stating: 'Bear damage started after 1979, about the same time the Forest Agency expanded coniferous plantations. If bears have enough food in the mountains, they won't come close to town…'.[11] An elderly hunter in Toyama states that bears only started appearing in human-inhabited areas since a ski resort was built in the early 1990s.[12]

This awareness of underlying causes of bear pestilence is also evident among the victims of pestilence. In Iwate Prefecture, the manager of a large farm had his crops of dent corn (a type of corn used to feed cattle) repeatedly raided by bears. He connected the increase in 'raids' to the construction of a ski field in the mountains nearby, which had involved the clear-felling of a substantial area of broadleaf forest. In the end, the farm manager felt unable to have the sow, which was always accompanied by cubs, culled. Instead, he planted an extra area of corn for them to feed on.[13] Similarly, in September 2004, a large apple orchard in Hyōgo Prefecture was raided repeatedly over several nights by bears, and about 10,000 apples were eaten. After the incident, the owner of the orchard stated: 'I have reconciled myself to it by thinking that [the apples] were a gift to the bears'. This prompted a strong response from the public nationwide: the orchard received about 500 letters from people congratulating the orchard owner for his tolerance, offering to donate money, or stating that the incident had prompted them to think about wildlife issues more seriously. The orchard owner subsequently began intensive planting efforts in the hills around the orchard, removing conifers and planting oaks in an effort to provide a more habitable environment for bears.[14]

Nevertheless, there is still a low level of consciousness of, and respect for, bear habitat among the general public in Japan, and this can lead to conflict, involving human injury or even death, as was reflected in the figures in Chapter Five. People who venture into mountainous areas for recreational activity often appear to be unaware that they may be in bear territory, and that they should therefore expect, or at least be prepared for, the presence of bears.[15] One wildlife researcher expresses frustration about this lack of awareness among the public. On one occasion, he almost collided with a car stopped in the middle of an expressway. On investigation, he discovered that the driver, after observing a bear crossing the road in front of him, simply stopped and sat dazed and speechless in his car. Exasperated, the wildlife researcher comments: 'we build roads through bear habitat, forcing the bear to cross roads to move...since we are driving through bear habitat, surely it is natural to see them!' [16] In another incident which clearly demonstrates the lack of awareness of human

encroachment into bear habitat, a beech re-planting project on the site of a disused ski field in the mountains of Higashichikuma District, Nagano Prefecture, was postponed in the face of opposition from holiday-home owners who were concerned that the beech trees would attract bears and lead to attacks. (Previous to its development for ski fields and holiday-homes, the area had been beech forest and habitat to bears.) The fact that it would take up to 30 or 40 years until the saplings mast did not appear to sway concerned home-owners.[17]

Figure 17: Road-side sign warning road-users of bears (Source: The 17th Conference of Beech Forest and Hunters Association)

Among upland residents who have always lived in mountainous areas, there is a stronger consciousness of bear habitat. People who have traditionally lived near bear habitats appear to understand and acknowledge more readily that it is their habitat, and respond by keeping themselves safe in simple yet effective ways. For example, until recently in Hida and Okumino (Gifu Prefecture) it was considered entirely natural to see a bear on a mountain trail, and it was similarly seen as quite usual for bears to appear and eat persimmons from the trees in the outer fields (*satoyama*) of the village. When children of these areas walked over the hill to attend the school in the neighbouring valley, they simply attached empty tin cans to their waist to warn off any bears which might be in the area.[18]

When conducting field-work in Akita Prefecture, the author was told of one case of *kuma-yoke* (bear-deterring) measures having an unexpected result in one upland village in Akita. When the villagers went on *sansai*-gathering trips, they would take a radio which they would leave switched on near their *obentō* (boxed lunches) while they collected *sansai*. On one occasion, despite the noise of the radio, a bear 'raided' their picnic site, helping itself to their *obentō*. Subsequent to this occasion, the bear (assumed to be the same individual) would return to the site whenever it heard the radio, obviously conditioned to associate the radio with tasty *obentō* lunches![19]

In a survey conducted in Toyama Prefecture, Hazumi and Yoshii (1994) found that people in mountain villages who have traditionally lived in bear-inhabited areas are relatively tolerant of the occasional visits by bears to feed in their fruit trees.[20] The authors found it tended to be the residents in villages and towns located on the plains or at the foot of the mountains who, on sighting a bear,

immediately call for it to be culled. A survey conducted by Maita (1998), in which he asked those he surveyed to state whether they agreed or disagreed with a number of negative statements concerning bears, made similar findings. The statements included 'bears are scary', 'they attack people', and 'they are harmful'. Those surveyed lived in one of three broad geographical areas: mountain villages (*sanson* 山村), the area in the foothills of the mountains (*sanroku* 山麓) and urban areas (*shigaichi* 市街地). Maita found that the group of which the greatest proportion answered in the affirmative was the *sanroku* zone, followed by the *sanson* residents, then the urban residents. He explains the lowest affirmative results among the urban residents by the fact that there is a higher adherence to conservationist ideas in urban areas. In the case of the *sanson* and *sanroku*, while it is the *sanson* residents who have the most frequent interaction with the bear, it is the residents at the foot of the mountains who express the most fear and negative sentiment. He explains this by the fact that, when these residents encounter bears, it is usually in the form of forestry or agricultural pestilence, particularly in years of low-mast rates (and thus as a manifestation of 'abnormal appearances' *ijō shutsubotsu* 異常出没).[21] The appearance of bears is therefore seen as 'abnormal' and unwelcome, leading to the negative perceptions.

There is a growing consciousness, even among city or town dwellers, of the need to use deterrent measures when hiking or pursuing other activities in the forest. *Kuma-yoke suzu* (bear-deterring bells, see Figure 18) are increasingly being sold not only in specialist outlets, but also outdoor goods shops, and their use is becoming more common. For instance, when conducting field-work in Iwate, the author observed hikers embarking on a mountain trail in the hills near Morioka City (Iwate Prefecture) with bells attached to their ankles. The demand for these bells has increased to such an extent that in early 2006, one of the only two makers in Japan (based in Morioka City) reported being overwhelmed by orders.[22] Bear-deterrent spray is also imported and sold in various outlets, though it is perhaps only the serious outdoor-enthusiasts who take the precaution of purchasing and carrying this item.

Figure 18: *Kuma-yoke suzu* (source: Mada 72-sai jan nikki (website))

Generally speaking, much of the discourse on the 'bear problem' tends to be centred around human needs, rather than the ecological role of bears within the forest ecosystem. For example, Kurisu (2001), who has published a book on the 'bear problem' based on his experience dealing with bear pestilence in his role at a town office in Hiroshima states:

> One often hears the phrase 'a society which can coexist with bears'. However, I wonder whether people who use this phrase have ever thought about whether bears are necessary to

> our society. For someone working in bear management in the public service, this is the question which causes the most anxiety (for me).
>
> When I consider the reasons why we do or don't need bears, the reasons we do not need them come to mind more readily. Bears cause a lot of pestilence, therefore for someone who is victim to that pestilence, it is natural that they think 'we don't need bears'.[23]

He goes on to explain that the Japanese wolf, which was hunted (and poisoned) to extinction, was probably considered to bring no benefits to humans by the people of the time. However, he points out, it is only now, with the exponential increase in deer numbers, that it has become apparent that the wolf functioned to keep a balance in nature. He goes on to state that, in the same way, the bear may also have such 'hidden assets' which may be beneficial to humans. For example, he suggests, it is not impossible that the bear might, at some time in the future, provide some enzyme which may be used to combat a new virus which threatens humanity.[24] He concludes that, given that the current generation cannot answer the question as to why we need the bear, it should be left to the next generation to answer it. If the next generation still cannot think of a single benefit of bears for humans after further research, then it should be their right to cull every last one of them.[25] This reasoning is clearly very anthropocentric, but is not infrequent in the discourse about the 'bear problem' in Japan: that is, if an animal does not bring any immediately obvious benefits to humans, and conversely, only brings costs, then it is of no 'value' to society. However, as Kurisu himself points out, if this line of reasoning is taken to its obvious conclusion, then most animals which bring no immediate benefits to humans would be culled to extinction.[26] It should also be noted that that this is not the only, nor necessarily, dominant line of thinking in Japan. One prominent and well-respected NGO involved in bear research and management in the Western Honshū region, noted in the previous chapter (*Nihon Tsukinowaguma Kenkyūjo*) states as the one of the fundamental precepts of the organisation: 'We do not believe there is a need to search for a reason for the bear's existence.[27]

7.3 Media coverage of the 'bear problem'

Media coverage of the bear usually relates not to the bear itself, but to the 'bear problem'. Whether it be television or newspaper (radio bulletins were not surveyed), media coverage tends to focus on attacks, sightings or bear-caused damage of some sort. In newspaper coverage, the majority of relevant headlines feature one of the following words or phrases: *kuma ni osoware* クマに襲われ (attacked by a bear), *shutsubotsu kyūzō* 出没急増 (drastic increase in bear appearances), or in a similar vein, *shutsubotsu aitsugu* 出没相次ぐ (appearances, one after another), *mokugeki* 目撃 (sighting), *hokaku* 捕獲 (captured), and *kuma ni chūi* クマに注意 (beware of bears). Typical headlines include for instance: *kuma ni osoware, dansei jūtai*クマに襲われ、男性重傷 (Man attacked by bear, serious injuries); *xx chihō de shutsubotsu ga aitsugu* ｘｘ地方で出没相次ぐ (Bear appearances continue in xx region); *kennai no kuma mokugekisū kyūzō* 県内のクマ目撃数急増

(Bear appearances drastically increase in prefecture); *xx de ittō hokaku* ｘｘで１頭捕獲 (Bear captured in xx).[28] Articles which concern bear research or conservation initiatives are rare, but are likely to have become significantly more common in the last several years.[29]

While the focus of coverage tends to be on the negative aspects of human-bear interaction, there is no longer the level of sensationalism or dramatic language used in decades past. Maita (1998) and Knight (2000b) both discuss past media coverage with headlines using such sensationalist language as *bōryoku-guma* 暴力グマ (violent bear); *kyōaku hanzai no kuma* 凶悪犯罪のクマ (a bear of brutal crimes); *shōgai no kuma-kō shikei* 傷害のクマ公死刑 (public execution for injurious Mr. Bear); 犯人を射止める *hannin wo itomeru* (shoot the criminal), but these articles date to 1965, and in recent years such sensationalist language is rarely used.[30] Maita traces this development in the tone of media coverage of bears in the decades since the 1960s, and finds that by the late 1960s, the tone was changing: warnings about over-hunting were appearing, and by the 1970s, the human causes of the 'bear problem' (mainly forest destruction) were being highlighted. In the 1980s, the input of wildlife specialists was being included in articles, and coverage was becoming more factually based and less emotive.[31]

In 2004, a year of high incidence of bear incidents nationally, there was also a high level of media coverage of the 'bear problem', so much so that it was cited as one of the top ten news items by one major national newspaper, and even became an essay topic in the following year's university entrance examinations.[32] Given this high coverage, it was considered instructive to monitor and analyse the development of coverage in one major national daily newspaper, the *Mainichi Shinbun*, over the course of the year. The survey of newspaper articles was performed using the *Mainichi Shinbun* online database. All articles containing a reference to the bear (Asiatic black bear) were selected (290 articles in total). The articles were then translated and categorised according to their content into one of four categories: 'positive', 'negative', 'neutral' and 'other'. The 'positive' category includes articles which discuss the ecological causes of bear pestilence; reports on scientific research or conservation efforts; efforts to raise public awareness of ecological issues concerning the bear; or which include constructive advice on how to avoid human-bear conflict. The 'negative' category includes articles which emphasise the potential or actual danger to humans posed by bears. The 'neutral' category includes reports on policy or initiatives regarding management of the bear, which is largely neutral in nature; or articles which contain equal elements of both negative and positive, for example, reportage on sightings/attacks, which also examines the ecological background to the problem and conservation approaches. The 'other' category includes articles which do not fall into any of the above categories. This analysis was then employed to determine whether there was any

clear development in content over the course of the year and to discern patterns evident in the coverage over the year. Results are displayed in Table 4, below.

Table 4: Reportage on bears[1] in *Mainichi Shinbun* in 2004

Type of reportage	Jan–April	May	June	July	Aug	Sept	Oct	Nov	Dec
Negative (sightings, attacks, pestilence, cullings, warnings) (% of total for selected figures in brackets)	0	6 (75%)	18 (90%)	11 (92%)	20 (83%)	31 (84%)	66 (59%)	24 (42%)	4 (20%)
Positive (conservation initiatives, incl. relocations, ecological context, scientific research, awareness raising)	0	1	2	1	3	3	26 (23%)	23 (40%)	14 (70%)
Neutral (policy, or ambivalent/neutral)	0	0	0	0	1	3	19	8	2
Other (bears in zoos, entertainment etc)	0	1	0	0	0	0	1	2	0
Total	0	8	20	12	24	37	112	57	20

As can be seen from the table, reportage is initially predominantly negative, focusing on bear appearances, attacks and pestilence. There is little analysis or comment on the underlying causes of the 'bear problem' or its ecological context. However, over the summer months, and into the autumn, bear incidents increase exponentially, reaching a peak in October. As the incidents reach unprecedented levels, the reportage begins to actively question the underlying causes of this phenomenon rather than simply reporting on it. This is reflected in the composition of articles published: from overwhelmingly 'negative', the tone becomes overwhelmingly 'positive' in December.[33]

Although the overall tone of most articles is serious, some articles take a more jocular tone. One reports on a bear being found ten metres up a cedar tree in the Eihei-ji temple grounds in Fukui Prefecture. The reporter observes that the bear was completely still, as though in prayer. The bear eventually climbed down the tree and escaped into the woods. The reporter observes: 'It is said that the frequent appearances of bears in the Hokuriku region this autumn is the result of environmental changes, but perhaps this bear simply came to pay its respects to the holy founder, Monk Dōgen?'.[34]

Evident in the newspaper coverage is a tendency to over-simplify the causes of the 'bear-problem'. The high level of bear incidents is correctly attributed to the poor masting of beech and oak species over a large area of Japan. However many articles suggested that this was caused, at least in part, by the large number of typhoons which afflicted Japan in 2004.[35] This explanation is convenient both for its seemingly clean cause-and-effect relationship, and in that, by attributing it to climatic phenomena, it dilutes or exonerates humans from any responsibility for the situation. In other words, by perceiving the dramatic increase in bear appearances and incidences in much the same way as typhoons or other extreme weather, it has the effect of taking the phenomenon 'outside human control'.[36]

While a systematic review of all articles was not conducted for the year 2006, a year of even greater bear incidents than 2004, a sampling of the year's coverage reveals a clear change in tone in newspaper coverage. As in previous years, the majority of articles cover some kind of bear 'incident': a sighting, incident of pestilence or attack. However, compared to previous years, a larger proportion of these articles also highlight the cause of the high level of pestilence: i.e., a poor mast of chestnut and beech trees over a wide area of Japan.[37] Unlike 2004, 'unusual weather' is rarely mentioned as a cause. Furthermore, many articles also outline measures to prevent attracting bears to farms or areas of human habitation, in particular, the correct disposal of crop and other organic waste. Thus, while the causes of the 'bear problem' are not dissipating, and in fact, judging from the statistics for 2006, the problem appears to be worsening, there is a much wider recognition, in the media at least, of the causes and means to prevent bear pestilence and attacks.

7.4 The symbolism of discourse on human-bear conflict

As outlined in Chapter One, the Japanese, particularly those in rural areas, have traditionally discerned clear spatial and psychological boundaries between village (*hitozato*), *satoyama* and *okuyama*. The *hitozato* is perceived as safe and predictable, while the *okuyama* is regarded as an unknown, wild and potentially dangerous place. A bear appearing in the sphere of *okuyama* is entirely natural: however, it is considered unnatural for a bear to occupy human-cultivated space: whether it be *hitozato* or *satoyama*.

This idea of incongruity is encapsulated in the term *ijō shutsubotsu* (異常出没 or 'abnormal appearance'), which connects with the term *kuma mondai* ('bear problem'), as noted in Chapter One (see also Glossary).[38] As noted in the discussion of media discourse on bear appearances, this is the term commonly used in media reports in particular to describe bear sightings near towns or villages. Even in the last two decades, when bear appearances in and around human settlements have become more common, such appearances are seen as 'abnormal'—as a departure from the normal behaviour of this creature, which dwells in the forest of the *okuyama* and avoids human contact (indeed, *okubyō*, or timidity, is a term often used to describe the bear's natural temperament). Such appearances, when they do not incur physical damage, are said to result in *seishinteki higai* (精神的被害) or psychological trauma such as that experienced by the man, noted earlier, who was found in a shocked state after seeing a bear on the expressway. Indeed, this case exemplifies the effects of such psychological trauma: the man was at no stage in any direct danger from the bear, safe as he was inside his car. However, the intensity of his shock resulted in him putting himself in real and immediate danger by remaining stationary in the middle of an expressway. Such psychological trauma occurs because the encounter is not 'supposed' to happen in human-occupied space—not necessarily because there is any real danger to the human 'victim'; in effect, the bear has the same effect as a ghost might if it crossed the road in front of a driver, or appeared at the back door.

One explanation for this strong sense of 'place' in the Japanese psyche is that the *okuyama/satoyama* dualism is the geographical equivalent of the social realms of *soto* and *uchi*, a dualism which regulates the social world in Japan. *Uchi* consists of one's own home, community, work-place and the people in them, and is a social environment involving strict rules, standards, obligations and expectations. *Soto* is everything and everyone outside this limited world of *uchi*, and does not require adherence to these strict social behaviours. Whereas certain behaviours are seen as entirely appropriate in the realm of *soto*, they would be deemed socially disruptive and inappropriate in the realm of *uchi*. In the same way, bears or other wild animals are thought to be in their proper place in the *okuyama*, but when they venture into s*atoyama* or *hitozato*, this is seen as abnormal.

The concept of *satoyama* also encapsulates another aspect of symbolism. This sphere is seen as a form of buffer zone, both physically and psychologically, between human space and the wilds of the *okuyama*. It is repeatedly referred to in discourse on bear and other wildlife pestilence, particularly in terms of it having 'broken down' through its post-war neglect and subsequent deterioration, to become an extension of the forest (*okuyama*).[39] This discourse is insightful, as it assumes that there remains an *okuyama* or 'wild and untouched' forested environment to which to act as a buffer. In fact, as has been discussed, little of Japan's forested uplands and mountains remain untouched, and most are developed to some extent through forestry, and infrastructural or other development. The idea of *satoyama* as a buffer zone could therefore be argued to be an illusion of a society which still believes (or wants to believe) that there is still a vast realm of wild nature against which it needs to be kept safe and protected. Naturally, there is an awareness of the fact that the habitat of bears and other wildlife has been destroyed, degraded or fragmented in recent decades and many commentators or people affected by pestilence refer to this as a cause of wildlife pestilence. However *satoyama* deterioration appears to be given either equal or, often, greater weighting than habitat destruction as a cause of pestilence in much of the discourse.

One further dimension of the discourse requires explanation: that concerning the concept of *kyōzon* 共存, or coexistence. Both the media commentary and other public discourse reflects a widely-held perception that there is an urgent requirement to balance human needs against the need to sustainably manage bear populations in order to secure their future in the wild in Japan, a concept referred to as *kyōzon*. However the discourse rarely explores concrete or tangible steps for achieving this goal. This paradox is reflected in public opinion also. In a survey conducted as part of research on wildlife values and opinion concerning wildlife management policy, rural Japanese respondents were asked to choose from four wildlife management approaches expressed by three short (and rather ambiguous) statements: '(Wildlife) protection should be the number one priority'; 'I want coexistence with wildlife' 'Culling is necessary'. 17.1 per cent of respondents chose '(Wildlife) protection should be

the number one priority'; 36.1 per cent selected 'I want to coexist with wildlife'; 28.9 per cent selected 'Culling is required'. (A further 13.9 per cent chose 'I don't really know').[40] As can be seen, the largest number of respondents chose 'I want to coexist with wildlife', which, owing to its ambiguity and abstract nature, is very difficult to interpret. Specifically, it is difficult to know how this approach differs from either of the two other responses. In other words, it is unclear whether 'coexistence' involve culling or protection, both, or some other means for its achievement. Thus, this discourse on *kyōzon* tends to be highly abstract, giving the sense that its achievement depends on animals and humans 'working together' towards the shared goal of *kyōzon*—it rarely leads to the exploration or evaluation of any tangible steps or goals.

7.5 Summary and conclusions

This chapter has examined public opinion and awareness, and media coverage of the 'bear problem' and the bear itself. The overriding perception of the bear in contemporary society is a paradoxical one: the bear is perceived as a pest and a danger on the one hand, and a victim of ecological degradation on the other. These contradictory perspectives are not always held, as one might assume, by opposing groups in society, but are often held concurrently by the same individual or group. For example, many hunters called in to 'dispatch' a trapped bear often experience conflict between their perception of the bear as a 'pest' and their view of it as a 'victim'. Clear geographical patterns are also evident in the perceptions held regarding bears, with upland residents who experience bear pestilence expressing less fear and anxiety in respect to the bear as compared to those who experience bear encounters only rarely. The symbolism evident in the discourse is also illuminating: the term *ijō shutsubotsu* demonstrates a strong sense of perceived incongruity in bears appearing 'where they should not be', an incongruity also reflected in the term *kuma mondai*.

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[1] Note that while the term 'bear country' has been employed here, this is in fact a foreign concept. Whereas in North America, the forested wilderness is commonly referred to in both popular and academic literature as 'bear country', there is no equivalent to this term in Japanese.
[2] For example, NHK, February 2005a; NHK, February 2005b; NHK, June 2005; NHK, November 2006.
[3] Although probably a negligible influence on popular opinion, international pressure may have played some part in the growing perception of the bear as a victim of a changing environment. For example, in 2002, the Eighth Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was held in Kyoto. The issue of bears was not an agenda item at the conference, but there was some criticism of the Japanese government making little effort to curb the illegal hunting of bears in Japan for the lucrative bear gall market. Nevertheless, it would be misleading to over-emphasise the influence of international pressure in this respect. As seen in the previous chapter, foreign influence on Japan's legislative system governing wildlife management has also been negligible.
[4] Knight, 2000a: 13.
[5] *Asahi Shinbun*, November 15, 2004.
[6] Azumane, 1993: 105–106.
[7] Anon., 2001.

[8] The contempt for this label is demonstrated by the example of one research organisation dealing with bear management and conservation (*Nihon Tsukinowaguma Kenkyūjo* 日本ツキノワグマ研究所), which states rather prominently on the homepage of its website: 'this is not an animal protection organisation'.
[9] Azumane, 1993: 44. Hunters are also known to raise the baby cubs of sows that have been killed, despite some prefectures (such as Iwate) stipulating by law that such cubs should be returned to the wild (whether weaned or not). In fact, one Iwate hunter reported sleeping with a bear cub he raised when the bear was unwell (Azumane, 1993: 46–47).
[10] *Asahi Shinbun*, November 6, 2006.
[11] Miyai Roy, 1998: chapter 4, C.
[12] *Asahi Shinbun*, September 13, 2004.
[13] Azumane, 1993: 101–102.
[14] *Mainichi Shinbun*, December 3, 2004.
[15] In contrast, judging from the literature, awareness of bear safety among recreational users of national parks, campsites and other areas known to be bear habitat is relatively high in the United States. For example, a report on human-bear conflicts in Yosemite National Park states that generally park visitors are very familiar with the causes of human-bear conflict and how to prevent incidents from occurring (Lackey & Ham, 2003: 155).
[16] Azumane, 1993: 33.
[17] *Shinano Mainichi Shinbun*, November 22, 2006.
[18] Kawasaki, 1993: 163.
[19] Fujimura Masaki 藤村正樹, personal communication, May 28, 2005 (Morioka, Iwate).
[20] Hazumi & Yoshii, 1994a: 44. It is worth noting that a similar pattern is evident in some regions of the United States also. A survey of residents, conducted by the Maryland Department of Natural Resources, found that residents who lived closer to (black) bear habitat appeared to be more tolerant of them that residents who lived further away (Spiker & Bittner, 2004: 12).
[21] Maita, 1998: 44.
[22] *Mainichi Shinbun*, May 21, 2006.
[23] Kurisu, 2001: 18.
[24] Kurisu, 2001: 18.
[25] Kurisu, 2001: 20–1.
[26] Kurisu, 2001: 18.
[27] The text in Japanese is: 私たちは、クマに存在理由を探す必要が無いと思います (Institute for Asian Black Bear Research and Preservation, 2003).
[28] All examples derived from headlines which appeared in national and regional newspapers between June and September 2006.
[29] For instance, an article published in the *Fukushima Minpō*, a regional newspaper, concerned a local NGO's initiatives to survey bear habitat, inter-prefectural initiatives to collect genetic data on bears and initiatives to analyse and prevent bear pestilence (*Fukushima Minpō*, August 29, 2006).
[30] Knight, 2000b: 153; Maita, 1998: 45. These headlines appeared in *Akita Sakigake Shinbun*秋田魁新聞 (Akita Prefecture).
[31] Maita, 1998: 45.
[32] *Mainichi Shinbun*, March 13, 2005.
[33] Nevertheless, few articles touched on the ecological value or function of the bear. Only one mentioned the bear's important function as a 'seed disperser' (*Mainichi Shinbun*, October 25, 2004).
[34] *Mainichi Shinbun*, September 26, 2004. Monk Dōgen is the famous Zen monk who founded this temple.
[35] According to experts, the poor mast was due to a very hot and dry summer. Because the mast develops as a result of the tree sending water and nutrients to the developing nuts, many of the trees dropped their nuts prematurely in order to prevent themselves from dying—in other words, as a kind of self-preservation mechanism. In 2004, most nuts had dropped before the typhoons hit, so it is unlikely that they had any significant impact (*Mainichi Shinbun*, October 16, 2004). Poor masts were also attributed to global warming (*Mainichi Shinbun*, October 3, 2004).
[36] This kind of social reaction is certainly not unique to Japan. Herrero (1985: 1) reports that when there were a spate of grizzly bear attacks in the United States in 1967, the media similarly sought such 'clean-cut', 'cause-and-effect' explanations, including that unusually dry weather or lightning storms had irritated the offending bears; that they had been fed hallucinogenic drugs and 'gone mad'; or that they had been attracted by women menstruating.
[37] In 2006, a poor chestnut mast was the primary cause of bear incidents in central Japan, while a poor beech mast was the primary cause of bear pestilence in the colder northern regions where the beech species predominates in indigenous forest.
[38] In addition, other terms are employed to describe bears which appear to ignore natural human-wildlife boundaries and encroach into human territory apparently with no fear of humans. For example, 'new generation bear' (*shinsedai-kuma* 新世代ク) is a term used for both Asiatic black bears and brown bears (Japan Bear Network (JBN) newsletter,

2005: 32; NHK, November 2004; NHK, February 2005a); and *sato-guma*, or 'village bear' (in contradistinction with *yama-guma*, or 'forest bear') (Maita, 1998: 27).

[39] For example, see Maita, 1998: 38; *Asahi Shinbun*, November 4, 2004; Ōi, 2004: 212–4.

[40] Watanabe & Ogura, 1996: 9–10. The study also found that those individuals surveyed who preferred 'protection' and 'toleration' were more likely to attribute ecological and psychological values to wildlife, such as that wildlife 'acts to maintain an ecological system' (ecological) or that wildlife 'gives humans the sense that beings other than humans exist' and 'provides a sense of beauty and interest' (to humans) (psychological).

Chapter Eight: Bears in upland culture: revered messenger of the *yama no kami*

8.1 Introduction

Part Three will examine the way in which the bear has been represented and perceived historically in Japan, in upland and lowland culture respectively. An understanding of the bear's place in Japan's cultural history and in traditional perceptions is important, as it is probable that these historical perceptions or representations inform, at least in part, contemporary attitudes towards the bear, which in turn influence the response to human-bear conflict and the current approach to bear management. This chapter will first explore representations and the significance of the bear in pre-historic Japan. This will be followed by a discussion of the development of the Japanese conceptualisation of the natural landscape, particularly the mountains which constitute bear habitat, before examining the bear's significance in upland culture.

8.2 Bears and humans in pre-historic Japan

What is known of the relationship between the bear and the people of pre-historic and early Japan has been gleaned from the various bear-related artefacts found in a number of Jōmon (10,500 B.C. to 400 B.C.) and Yayoi Period (400 B.C.–A.D. 250) sites in northern Tōhoku. Wild boar, deer and bears became important game species during the Jōmon Period, taking the place of the Ice Age mammals that were hunted by the Palaeolithic predecessors of the Jōmon people.[1] Not only were these animals an important source of food, but of clothing, tools and other items also.[2] Furthermore, they became important in the spiritual lives of the pre-historic people of Japan—some more so than others. We are able to understand something of the role they played from archaeological artefacts such as pendants, bones and earthenware found in archaeological sites of the Jōmon and Yayoi Periods.

Earthenware pots decorated with bear figures or motifs, clay figurines of bears, bear-tooth pendants and other bear-related artefacts have been found in Jōmon and Yayoi Period sites in northern Tōhoku and Hokkaidō. Significantly, no such artefacts have been found from the southern half of Tōhoku south-eastwards (despite bears inhabiting the south-east of Japan also).[3] This distribution is even more limited in the case of bear effigies. Outside Hokkaidō, bear-shaped effigies have only been found in Aomori (at fifteen Jōmon and Yayoi Period sites) and Iwate (four Jōmon and Yayoi Period sites).[4] This distribution may indicate that the bear symbolism and ritualism evident in the Tōhoku region was connected to the spread of bear-centred beliefs found in hunting societies around the Arctic Circle (including Hokkaidō). However further research will be required to establish this with any certainty.

What were the purposes of these bear-shaped figurines and other bear artefacts? Fukuda (1998) suggests that the earthernware receptacles may have developed in the Late Jōmon Period (1500 to 1000 B.C.) to replace ceremonies involving the sacrifice of live animals. It is surmised that receptacles were designed to contain blood, or other liquids of some kind.[5] Animal-shaped earthenware figurines (*dogū* 土偶) also began to emerge from the late Jōmon Period at sites distributed from Hokkaidō in the north to Kyūshū in the south. While animal-shaped artefacts have been found in the form of birds, fish, shellfish, insects, sea animals and amphibians, it is terrestrial mammals that are the most common. Fukuda suggests that these animal effigies were used in rituals for the supplication of the gods for a good hunt.[6] The predominance of terrestrial animals as motifs certainly appears to support this proposition. Kobayashi (2004) also suggests that rituals to pray for success in hunting were probably a significant aspect of Jōmon life, but proposes one further dimension to the use of these artefacts: animal reincarnation ceremonies, similar to those recorded in the ethnographies of Ainu and Siberian hunters. One such example is a buried bear skull at Saibana in Aomori Prefecture, which appears to indicate some kind of ceremonial activity.[7]

The appearance of animal figurines and motifs cannot be explained by the practical importance of the animal alone. Judging from archaeological finds from Jōmon Period middens in the Tōhoku region, it is thought that, among all the large mammals, wild boar and deer were the game animals hunted in greatest numbers. Yet, few deer figurines or deer-motifed artefacts have been found, though large numbers of wild-boar and bear related artefacts have.[8] No persuasive theory has yet been offered to explain this. Sutō (2004) suggests that the discrepancy may be due to the fact that the antlers of deer were difficult to mould.[9] While this is certainly possible, this difficulty could have been avoided by modelling female deer (without antlers).

Nagamine (1986) posits an alternative theory for the prevalence of bear/boar figurines, which relates to the function of women in Jōmon society. He suggests that in the Late Jōmon (1500 to 1000 B.C.) and Final Jōmon (1000 to 400 B.C.) Periods, it became the role of women to catch insects, turtles and other slow-moving animals. Young boar and bears were easier to catch, he proposes, because, in contrast to deer, which were ‘agile and difficult to catch, the young of wild boar or bears only crouched instead of running away when people tried to catch them.’ He suggests that these figurines may have been made by women as ritual objects for incantation, or as representations of their food-gathering functions. Furthermore, Nagamine proposes that women raised the young of bears and boar for ritualistic sacrifice, in a similar fashion to the Ainu ceremony for the bear. As evidence of this he points to archaeological finds of the bones of young wild boar which suggests their ritualistic use.[10] While this theory is an intriguing one, it is not altogether persuasive. For example, he provides no evidence to support the suggestion that these figurines were only created by women, nor that young

animals were raised by women; nor has the propensity of a young boar or bear to crouch when pursued been substantiated.

In complete contrast to the theory proposed by Nagamine, it has been suggested, rather more persuasively, but by no means conclusively, that wild boar and bears were associated with a higher level of spiritual significance, and therefore were more frequent subjects of effigies and motifs. Watanabe (1990, cited in Pearson, 1992) proposes that only people of chiefly rank engaged in bear and other large animal hunting, which was regarded as a high-status activity.[11] However, some caution is required here, as Watanabe's conclusion is deduced from comparative research of hunting and gathering societies worldwide, rather than being derived from direct evidence gathered in Japan.

<table>
<tr><th>Period</th><th>Honshū</th><th>Hokkaidō–Sakhalin (& northern Honshū)</th></tr>
<tr><td>Present</td><td rowspan="2">Historic Period</td><td>HISTORIC AINU</td></tr>
<tr><td>A.D. 1200</td><td>SATSUMON/
OKHOTSK</td></tr>
<tr><td>A.D. 700</td><td>YAMATO
Japanese state formation</td><td rowspan="3">EPI–JŌMON
Hunting,
gathering,
fishing</td></tr>
<tr><td>A.D. 600</td><td>KOFUN
state formation</td></tr>
<tr><td>A.D. 250</td><td>YAYOI
agriculture</td></tr>
<tr><td>250 B.C.</td><td colspan="2" rowspan="2">Final
Late
Middle
Early
Initial
Incipient
JŌMON
hunting,
gathering
fishing</td></tr>
<tr><td>5,000 B.C.</td></tr>
<tr><td>10,000 B.C.</td><td colspan="2" rowspan="2">PALEOLITHIC
hunting, gathering, fishing</td></tr>
<tr><td>30,000 B.C.</td></tr>
</table>

Figure 19: Archaeological cultures of Hokkaidō and surrounding regions (Adapted from Yamaura & Ushiro, 1999)

Of all regions in Honshū, the Aomori region boasts the largest number of bear-shaped or bear-motifed artefacts, particularly from the late Jōmon Period onwards. In the Yayoi Period, the number of bear artefacts found in Aomori outnumber even those of wild boar.[12] Fukuda (1998) concludes that in this area both wild boar and bears were the focus of magico-religious beliefs in the Mid to Late Jōmon Periods (2500–1000 B.C.), while bears became the more central figure in spiritual beliefs and ceremony in the Yayoi Period.[13] This may be as a result of its proximity to, and a high level of interaction with, southern Hokkaidō: indeed, there are striking similarities between the development of animal-shaped and motifed artefacts in the Aomori region and Hokkaidō.[14]

This cultural similarity can be explained by the fact that, archaeologically speaking, Tōhoku was part of the Epi-Jōmon (the 'post-Jōmon' hunting and gathering period of Hokkaidō, lasting from 250 B.C. to A.D. 700) sphere of influence until its conquest and settlement by the Yamato Japanese in the eighth century onwards. (See Figure 19 for an overview of the archaeological periods of Hokkaidō

and Honshū.) The introduction of wet rice agriculture into Japan resulted in a transition from a largely hunting and gathering culture to a largely agricultural culture (Yayoi Period culture) and was followed by the Kofun (Yamato) Period (A.D. 250 to 600), characterised by the construction of burial mounds. However the influence of these cultures permeated from the south, and it was not until the Heian Period (A.D. 794 to 1185) that the Yamato culture fully penetrated the Tōhoku region, and much later (the Meiji era, A.D. 1868 to 1912) before Japanese influence fully permeated Hokkaidō. Thus, while the economy became agrarian-based in the southwest, the predominantly hunting and gathering lifestyle of Tōhoku and Hokkaidō persisted through to the Middle Ages.

During the Jōmon and Epi-Jōmon periods, there is evidence not only of cultural interaction, but also biological mixing between the people of northern Honshū and the inhabitants of Hokkaidō. Scholars know, for instance, that inhabitants of Hokkaidō and northern Honshū were moving between the two islands by eight millennia ago.[15] There is also thought to have been a high level of trade and intermarriage between the southwest region of Hokkaidō and northern Tōhoku.[16] Epi-Jōmon influence from Hokkaidō is thought to have extended south into the Tōhoku region, reaching as far as the Sendai region near the northern boundary of the Kofun culture between A.D. 400 to 500. Japanese written records also indicate contact between the inhabitants of Hokkaidō and people known as the *Emishi* 蝦夷, inhabitants of northern Tōhoku (discussed further in Chapter Ten), during the Satsumon Period (A.D. 700 to 1200).[17] Later, when the historic Ainu cultural period began (from approximately A.D. 1200), Ainu are thought to have inhabited not only Hokkaidō, Southern Sakhalin, and the Kurile islands, but also the Tōhoku region.[18] As a consequence, it is problematic to think of 'Epi-Jōmon/Ainu culture' and 'Tōhoku culture' as separate and mutually exclusive cultural spheres in the periods prior to, and even following, the Tōhoku region's assimilation into the Yamato state.

This is significant within the context of the discussion of the significance of bears, because given this high level of interaction, it is probable that there was some mutual influence between the ancestors of the Ainu (and later the Ainu themselves) and the inhabitants of Tōhoku in relation to the wildlife that was so central to their lives. Indeed, judging from the similarity in archaeological finds of bear related artefacts, particularly between Aomori Prefecture and southern Hokkaidō, it is reasonable to assume that the pre-historic people of Hokkaidō and northern Honshū probably shared some common practices and beliefs in relation to bears, albeit different species. It is possible that in northern Honshū these practices largely died out as Yamato culture infiltrated the region from the south. It is also possible that the rituals observed later (from the sixteenth century) by the *matagi* hunters of the Tōhoku region developed from a form of bear (and other animal) ceremonialism practised by the pre-Yamato people of Tōhoku, but this link is yet to be verified. Nevertheless, there are a number of parallels between Ainu and *matagi* culture, and the literature discussing these commonalities will be discussed later in this chapter.

8.3 The development of the Japanese geomentality and the sacralisation of mountains

As was noted in Chapter One, an animal cannot be viewed in isolation from its habitat: in the case of the bear, the forested mountains. This leads to the question, how was the natural environment viewed by these early Japanese, and how did this conceptualisation develop in subsequent periods? Kobayashi (2004) postulates that the Japanese began 'socialising nature' in Jōmon times. Specifically, this involved the division of geographical space around a place of human settlement. Whereas people in Palaeolithic Japan (approximately 200,000 to 10,500 B.C.) lived in a nomadic or semi-nomadic way, moving as the availability of resources necessitated and using temporary campsites largely undifferentiated from their surroundings, Jōmon people practised a more settled lifestyle. They began to use the natural resources available to them to create their own distinctive spaces which they distinguished from the natural environment around them. The establishment of village communities was a very important development in the Jōmon period, and Kobayashi argues that it was at this time that the division of space around the settlement into various spheres was established. He identifies the spheres as follows: the settlement, the nature around the settlement, wild nature, and beyond that the world of spirits (or the 'other world'). These are the spheres that today approximate *hitozato*, *satoyama* and *okuyama* in upland Japan. For the Jōmon people, he suggests, their landscape was no longer the wild landscape occupied by Palaeolithic hunters, but an 'encultured landscape, viewed through the filter of Jōmon knowledge and experience.'[19]

The Early Jōmon cemetery at Nakanoya Matsubara in Gunma Prefecture is an example of this 'socialisation' or 'enculturing of nature'. At this site, there were a number of pit-dwellings surrounded by a plaza, which contained a cemetery comprising many graves. A tall standing stone stood over the cemetery, and the heads of the deceased people were all positioned pointed towards this marker. What makes the site significant is that when one stands in the village plaza and looks towards the standing stone, the distant, yet distinctive shape of Mount Asama is directly in the line of sight.[20] This putatively demonstrates a high degree of planning on the part of the village builders, and shows that the Jōmon people actively incorporated the natural landscape into their 'socialised landscapes.' Another example of such 'landscape design' incorporating a local mountain is that seen at the Early Jōmon Akyū site in Nagano Prefecture. Here, a series of large stones were positioned in the middle of the settlement. They formed an alignment of two parallel rows pointing towards the distant form of Mount Tateshina. Kobayashi suggests that both examples demonstrate that the Jōmon people did not regard the views from their settlements 'as simply pleasant vistas, but as meaningful landscapes imbued with special significance.'[21]

However, the conceptualisation of the natural environment, and particularly mountains, did not, of course halt its development there. It developed in close connection with religious belief systems,

particularly folk religious ones, which permeated every aspect of Japanese life long before the introduction or establishment of 'formal religions' such as Buddhism and institutionalised Shinto. In Japanese folk religion, *kami* (deities) are thought to reside in natural objects such as trees, rocks, plants, or animals, manifesting themselves as natural phenomena such as wind or thunder, by possessing humans, or by making oracles.[22] Mountains, forests, beaches, capes, and bodies of water, such as rivers, springs, marshes, ponds and waterfalls, all came to be regarded as particularly sacred places, or the 'otherworld'—places of mysticism. [23]

In particular, mountains (*yama*) were accorded special significance in folk religion, as the realm of powerful deities, called *yama no kami*. Blacker (1975) points out that this perception of the *yama* as the realm of the gods can be traced back to prehistoric times. She states: 'Archaeological finds of ritual tools have been discovered on sites at the foot of certain hills which unmistakably point to a cult of a deity dwelling on the summit.'[24] Worship of the *yama no kami* is traditionally practised among farmers and those whose livelihoods centre on the mountains, such as charcoal-makers and hunters. Hori (1966) proposes that the *yama no kami* may have initially been worshipped by the 'hunting tribes' as the 'Divine Mother', and later, with the advent of agriculture, that its worship was adopted by farmers.[25] Naumann (1963) proposes that the dual role of the deity as 'protector' of both the mountains and the agricultural fields may have its origins in the practice of swidden (slash and burn) agriculture in the mountains (which is not necessarily inconsistent with Hori's theory, as for many hundreds of years, people combined hunting with swidden agriculture). According to Naumann's theory, the *yama no kami* was the protector of these mountain fields, and so it was merely an extension of this role that it became the protector of cultivated fields outside of the forest also.[26] Indeed, this dual role is reflected in the fact that, from at least the Yayoi Period onwards, according to the folk beliefs of farmers and lowland-dwellers, the *yama no kami* and the *ta no kami* (deity of the fields) were essentially the same god; the *yama no kami* was believed to descend from the mountains in spring to become the god (or guardian) of the fields, and then return to the mountains once the crops were harvested.[27] In contrast, to the upland hunter, who engaged in a limited degree of agriculture, but not wet-rice agriculture on the lowland plains, the *yama no kami* was protector of the mountains and did not transform into this deity descending to the plains.[28]

Although this divinity is portrayed as both male and female, scholars suggest that it was originally thought to be female.[29] Hori suggests that this probably stems from the notion that the mountain has the power to cause the birth or rebirth of human beings and animals; the mountain goddess was originally the goddess of reproduction both of plants and animals.[30] The perceived gender of the *yama no kami* appears to have depended to a large extent on people's occupation and lifestyle: while lowland villagers tended to the see the deity as male, upland dwellers (those engaged in hunting, swidden farming, woodcutting and charcoal-making) tended to see the deity as female. [31]

Parenthetically, among the *matagi* hunters of Tōhoku, it was not only believed that the deity was female, but also that she was extremely ugly. It was believed that she would become jealous and bad-tempered if those more beautiful than her entered the mountains. (Stormy weather was thought to be one manifestation of her bad temper.) For this reason, *matagi* hunters would carry with them such things as the (particularly grotesque) dried body of an *okoze*, or stone fish, to keep her in good temper.

Another belief concerns the relationship between mountains and the souls of the dead, beliefs which have played an important role in the development of ancestor worship in Japan.[32] This belief stems from the ancient custom of burying the dead in the mountains. Connected with this belief is the idea that the mountains are a meeting ground between the mortal world and the 'other' world, which is itself predicated upon the belief that the other world exists somewhere beyond or above the mountains.[33] The close connection between burial and mountains is also reflected, Hori suggests, in the ancient practice of burying emperors in natural hills, or constructed mounds resembling hills, called *kofun* 古墳. Even in the Heian period, when *kofun* were no longer constructed, the emperor's mausoleum was still referred to as *yama* (mountain) and the official responsible for erecting the mausoleum was called *yama tsukuri no tsukusa* (literally, 'the official who erects the mountain').[34]

In the ninth and tenth centuries, a mountain-based religion, *Shugendō* 修験道 (literally, way of the ascetic) centred on the mountains deemed to be particularly sacred, became established. *Shugendō* is an amalgamation of folk-religious, Taoist and Buddhist beliefs and spiritual practices relating to sacred mountains. In particular, *Shugendō* has a close relationship with Japanese folk religion, and shares similar notions regarding mountains.[35] *Shugendō* shrines were established on sacred mountains throughout Japan, but became particularly prevalent in the Tōhoku region.[36] While it is not clear why *Shugendō* is so pervasive in Tōhoku, Hori highlights the fact that there is an intimate connection between mountain ascetics (*shugenja* 修験者 or *yamabushi*山伏*)* and the *matagi* hunters of this region.[37] For example, according to the legends associated with *Shugendō's* sacred sites, many of the founders of these sacred places first 'discovered' the mountains after being led there by animals or hunters (an aspect which will be discussed further in the next section).[38] Hori also suggests that there is some evidence that the sacred mountains which are now *Shugendō* sites were at first sites of magico-religious rites by shaman-leaders among the hunters.[39]

In contradistinction to this view of the mountains as the realm of powerful deities and death, the realm of *satoyama*, discussed earlier in the context of human-bear conflict, came to be seen as a realm which acts as an intermediary, or buffer zone, between the 'other world' of mystical and frightening beings and the relatively safe and 'known' realm of human-inhabited villages.[40] Kitamura (1995) suggests that the pivotal role of the *satoyama* in Japanese culture is reflected in the fact that it is the

satoyama, rather than the *okuyama,* that is the setting for most Japanese folktales (*mukashibanashi* 昔話) which feature animals and aspects of nature. Kitamura further suggests that the word *yama* encompasses within it the meaning of 'far from human habitation' (*hitozato o hanareta* 人里を離れた), and folktales which feature characters going into this realm of *yama* often emphasise how remote these places are from human habitation.[41] Kitamura argues that it is the semi-domesticated, familiar realm of the *satoyama* which has most strongly influenced the Japanese perception of nature, suggesting that the much vaunted 'Japanese love of nature' is borne out of the traditional Japanese interaction with *satoyama* (as opposed to the 'real nature' of the *okuyama*).[42]

The conceptualisation of the landscape, and especially the mountains, is significant in the Japanese relationship with the bear—both in the case of the upland and lowland dweller—though their respective perceptions of both the mountainous landscape and the bear are traditionally very different, as will be seen.

8.4 Beliefs about bears in upland folklore

Folklore relating to the bear has been documented in Kyūshū, Shikoku, Chūbu and Tōhoku regions, (see for example, Chiba, 1969; Miyao, 1989, Gifuken Hōnyūrui Chōsa Kenkyūkai, 1993), but it is the culture of the *matagi* hunting communities of Tōhoku which is best-known. *Matagi* hunters and their communities subsisted by hunting, gathering and fishing as well as by dry-field agriculture over the short summer months. They followed strict rituals and protocol in preparation for, and during, their hunts, centering largely on the mountain deity. This section will examine beliefs and folklore relating to the bear throughout upland regions Japan, before turning specifically to the bear's place in *matagi* folklore in the next section.

Its association with the *yama no kami* is one important aspect of the traditional consciousness of the bear in upland areas. The bear was traditionally seen by upland hunters as one of the creatures of which the *yama no kami* is 'owner' or 'guardian'.[43] It was believed that when animals are hunted and killed, the *yama no kami* must be placated and thanked for letting the animals over which she/he has guardianship be sacrificed.[44]

In addition to this relationship of guardianship between the *yama no kami* and the bear, beliefs also developed regarding the bear being a messenger (*otsukai* お使い) or earthly form of the *yama no kami*, particularly in association with *Shugendō* and *Suwa Shinkō* 諏訪信仰 (*Suwa* faith) (discussed below).[45] This was especially so in the case of bears with unusual pelage, as noted below. This belief has been further overlain in some instances by Buddhist-influenced notions that the bear is an earthly form of Buddhist avatars.[46] As Shinto and folk-religious belief systems were practised in a highly

syncretic fashion for many hundreds of years (particularly in the case of *Shugendō*, which is strongly associated with upland hunting culture), it is natural that bears would not only have been associated with the gods of Shinto or folk religion, but also with Buddhist deities.[47]

The crescent moon marking on the bear's chest was regarded as having special significance in many upland regions.[48] Hunting communities developed folklore to explain the mysterious marking. According to local folklore in Kitaurahara County in Niigata Prefecture, the white marking was left by an amulet given to the bear by the *yama no kami*: the amulet was wrapped in silk wadding which, when removed, left a white marking.[49] In contrast, in some hunting communities, it was believed that the bears *without* the marking were the most sacred. In Akita Prefecture for example, *matagi* hunters called these latter individuals *minaguro* (all black) or *munaguro* (black chest) bears, and believed that they were the special messengers of the *yama no kami*, and therefore particularly sacred. If they accidentally shot such a bear, they reportedly offered the bear to the *yama no kami* and gave up hunting from that time on.[50] In Nagano Prefecture, these bears were referred to as *nekoguma* (cat-bear) or *yami* 闇 (darkness), and similar beliefs and prohibitions against killing them existed.[51]

Miyao (1989) claims that both the bear's marking and the bear itself were traditionally associated with rebirth and transmigration. Certainly, owing to the fact that it waxes and wanes, the crescent moon holds special significance in Japanese folk religion, *Shugendō*, and some Buddhist sects, for its association with rebirth, and therefore it is perhaps natural that these beliefs be extended to the bear also, particularly in light of its ability to be 'reborn' through hibernation.[52] Miyao suggests that the phenomenon of the bear's yearly 'disappearance' in winter and its subsequent re-emergence in spring with cubs, resembling as it does the cycle of rebirth, has influenced the Japanese cosmology, particularly in respect to a consciousness of transmigration. In fact, it is for this reason, he argues, that the Japanese recognised the marking on the bear's chest as a crescent moon.[53] While this supposed influence on the Japanese cosmology and spiritual belief system is a tenuous one, for which no evidence is provided, the association between bears and rebirth itself has been made in human societies in the northern hemisphere since pre-historic times, as was discussed in Chapter Three.[54]

Though the belief in the sacred nature of the bear and reverence for it was likely to have preceded the introduction and dissemination of Buddhism, the Buddhist-based decree prohibiting the killing of animals is likely to have brought a stronger moral dimension to existing beliefs. Upland hunting communities devised different strategies for dealing with the contradiction inherent in killing something revered as sacred: some, such as the Kiso area in Nagano Prefecture, imposed strict prohibitions on hunting.[55] Many developed traditions for erecting memorial stones (see Figure 20), and special prayers and sacrifices to placate both the *yama no kami* and the bear's spirit and to avoid

Figure 20: Stone memorial erected to placate bears' spirits (Otsuchi-machi) (Source: Tōno Municipal Museum)

becoming subject to the bear's *tatari* 祟り (curse). [56] In particular, there are curses associated with pregnant bears: in the Sobo-Katamuki Mountains in Kyūshū, there is a saying, 'Kill a pregnant bear, cursed for seven generations' or such variations in consequences as, '…your family will no longer prosper', or '…the hunter will be cursed and soon die himself'.[57]

There was also a belief among *matagi* and other Japanese hunting cultures that the killing of a bear in the mountains leads to a *kumaare* 熊荒れ or 'bear storm', as the bear's spirit or soul has the power to affect the weather.[58] This may stem from the fact that traditional *ana-gari* (den-hunting), which occurred in the spring, was generally carried out on fine, clear days when hunters could easily move around on the frozen snow. Spring weather tends to go through regular cyclical changes, and so the chance of a bear-hunt being followed by bad weather was relatively high. The frequency of this coincidence may have led to the belief about *kumaare*.[59]

The manner in which hunting communities dealt with the spiritual and moral conflict inherent in killing an animal regarded as sacred appears to reflect the relative importance of the bear to their subsistence lifestyle: those communities for which the bear was pivotal to subsistence devised ways to circumvent this moral conflict and continue hunting, though at the same time applying strict rules to regulate the manner in which hunting was carried out. In the Tōhoku region, for instance, where *matagi* culture developed, species such as wild boar and deer, which were plentiful in the west of Japan, were less common: the only large animals which were available to hunt were serow and bear.[60] So while ideas about the bear being sacred, or being associated with the mountain deity existed, the *matagi* hunters developed complex and sophisticated rituals and even literature (the so-called *matagi* foundation books, see Figure 22) to circumvent the problem this presented. In southwestern Japan, where other large mammal species were plentiful, (and proved less dangerous to hunt than the bear), it was a simpler matter to follow strict prohibitions on the killing of bears, and this pattern can be seen in Shikoku and parts of Chūbu. In Kyūshū, there are instances of hunters giving up hunting altogether after inadvertently killing a bear.[61]

One faith which particularly emphasised the bear's role as an earthly form or messenger of the mountain god, is *Suwa myōshin shinkō* 諏訪明神信仰. The centre of *Suwa myōshin shinkō* is Suwa Taisha 諏訪大社, or Suwa Grand Shrine, which is located in Nagano Prefecture. This shrine is one of the oldest shrines in Japan, and is mentioned in the *Kojiki* (A.D. 712). In ancient times the gods enshrined there were worshipped as hunting deities (and later, following the spread of wet-rice agriculture, as farming deities).[62] Probably because of this ancient connection with hunting deities, the Suwa faith appears to have become popular among hunters, particularly from the end of the Muromachi Period (A.D. 1333–1573). One of its teachings was that the spirits of animals were 'freed' through their death to go to paradise (*tenshōjōbutsu* 転生成仏).[63] A faith which rejoiced in the belief that a killed animal would be reborn as a Buddha brought great solace to hunters, and it is natural that it gained a following among them.[64]

However, in apparent contradiction to its otherwise supportive moral stance on hunting (including the hunting of bears), the *Suwa Taisha* prohibited the offering of bears at the shrine. The *Kamisha monoimirei* 上社物忌令 (literally, 'order on things prohibited by the upper shrine'), a decree issued by the shrine in the thirteenth century, lists five animals which were prohibited from being offered as sacrifices to the shrine. The first animal listed is the bear.[65] This prohibition concerning the offering of the bear has been explained by its designation as a messenger of the *Kumano gongen* 熊野権現 (an avatar of the *Shugendō* faith). However, this being the case, the prohibition of the sacrifice of bears is inconsistent with the fact that the deer, which was the messenger for the *Kasuga Myōshin* (春日明神), an avatar of the Suwa shrine itself, was sacrificed in great numbers at Suwa shrine. Chiba suggests that it is more convincingly explained by a prohibition which existed among people of the Chūbu area (where the shrine is located) which pre-dates those associated with the Suwa faith and the decree.[66] In any case, given this clear prohibition on the sacrifice of bears, it is ironic that the *matagi* hunters, to which bear-hunting was pivotal, 'adopted' the Suwa faith for its spiritually comforting teachings about *tenshōjōbutsu*. This may be another instance of the 'practically religious' tendencies of the Japanese—the use of, or adherence to, certain aspects of religion which suit the needs of the individual or community, while discarding or ignoring those which do not.[67]

As will be discussed in the following chapter on the bear in lowland culture, the bear is notably absent as a symbol or totem in religious traditions associated with lowland culture, unlike the fox or wolf, for example. Even in the upland areas, somewhat surprisingly perhaps, it features little in the iconography of the mountain-religion traditions such as *sangaku shinkō* (mountain worship) and *Shugendō*. When it does feature, it is usually in association with the founding legends *kaisan engi* 開山縁起 of mountain temples or shrines.[68] These *kaisan engi* were used as advertising tools by lower-ranking

shrine priests and *yamabushi* who acted as professional 'middlemen' between pilgrims and the *Shugendō* centres, organising pilgrimage groups and serving as pilgrims' guides.[69] Through the legends and miracle tales encapsulated in the *kaisan engi*, they sought to enhance the temple's reputation and its attraction to worshippers by explaining the 'wondrous happening' (*reii* 霊異) which led to the temple being founded.[70] To illustrate their stories, scrolls and so-called 'pilgrimage mandalas' (*sankei mandara* 参詣曼荼羅) depicting pilgrimage sites were produced in great numbers.[71]

The *kaisan* tales often take the form of a hunter (or hunters) following an animal into the mountains, and there witnessing the manifestation of a deity: examples of sacred mountains with such founding legends are Kōyasan 高野山, Hōkidaisen 伯耆大山, Hikosan 彦山, and Nikkōsan 日光山.[72] Though deer more commonly feature in these legends, there are a number of places in Japan where mountain temples are said to have been founded after a hunter followed (or was guided by) a bear into the mountains. The Oyama Shrine 雄山神社, on the summit of Mount Tateyama in Toyama Prefecture is one of the better known of such places. It is unclear when the Oyama Shrine was founded, but there is a mention of its founding in the *Manyōshū* anthology of poetry, dated 701. From ancient times, Tateyama was worshipped as one of the 'three sacred mountains', along with Mount Fuji and Mount Haku.[73] The Tateyama mandala (立山曼荼羅) illustrates one scene in the founding legend of Oyama Shrine, depicting a wounded bear running from the hunter after being shot and injured by an arrow.[74]

Mt Hayachine Shrine 早池峰神社 near Tōno in Iwate Prefecture has a similar founding legend, though in this case featuring a deer. This legend relates that it was established by two hunters around A.D. 807, who followed a deer into the mountains and on witnessing the appearance of an avatar in a cavern on the top of Mt Hayachine, built a shrine there.[75] The mountain subsequently became the

Figure 21: An *ō-ema* (votive picture) of bears from a shrine in Iwate Prefecture, Tōno Museum. (Photo: C. Knight)

focus of a sacred mountain faith (*reisanshinkō* 霊山信仰) which was an amalgamation of an early form of mountain worship, *Shugendō*, and esoteric Buddhist teachings (*mikkyō* 密教).[76] What is notable about the shrine is that it is one of the few places to have a religious artefact, though relatively recent in age, featuring bears. It is an *ō-ema* (large votive picture), which was gifted to the shrine in 1910 by three hunters from a village in the Tōno area (see Figure 21).[77] While the significance of the bears in the *ō-ema* is not clear, the bear is not an unlikely motif given the shrine's location in an area known for bear hunting, and given the shrine's strong association with hunting generally, both in respect of its patrons and its founding legend.

In terms of its general attributes, the bear is connected with such characteristics as courage, strength, and perseverance in upland areas, particularly by hunters.[78] It is also associated with motherly devotion: sows are admired for their maternal dedication and forbearance, connected both to their giving birth during the cold of winter, and the dedication required to nurture a tiny, blind and helpless new-born cub.[79] Hunters have been reported to admire the dedication shown by the sow when, preceding the birth, she leaves the winter den to drink water from a nearby stream so that she is able to lactate.[80]

These images of the bear as couragous, strong and as a dedicated mother are demonstrated in Miyazawa Kenji's 宮沢賢治 (1986–1933) short story, the 'Bears of Nametoko' (*Nametokosan no kuma* なめとこ山の熊), which is said to have been written based on an actual *matagi* hunter who lived in Iwate Prefecture at the time.[81] In this story, the central character, a hunter, encounters a bear, which implores him not to kill it on this occasion, as 'there are still things I've got to do'.[82] Instead the bear promises to sacrifice itself in two more years, after taking care of these things. Though not stated explicitly, it is probable that the tasks the bear refers to are those of raising a cub to independence—certainly, the two year period would be consistent with this explanation. Another short story written by Muku Hatojū 椋鳩十(1905–1987), called *Tsukinowaguma* 月の輪熊, explores the selfless courage and maternal dedication of the bear, implicitly contrasted with the selfishness, short-sightedness and greed of human beings. This story was written in the wake of the Second World War, and it is likely that the author was reflecting on these human vices, which had come to the fore during this period of warfare and devastation.[83] Both authors grew up in the northern Honshū region, where the *matagi* tradition was strong, and it may be that this had an influence on their perceptiveness and admiration in regard to the bear.

8.5 The bear's place in *matagi* culture

The bear, and bear folklore, is central to *matagi* culture, the hunting communities of the upland regions of Tōhoku.[84] As highlighted above, hunting was certainly not limited to Tōhoku, and indeed

bear hunting was practised as far south as Kyūshū until relatively recent times.[85] However, it was in the Tōhoku region that hunting became a distinct 'culture' in its own right, with an established body of doctrine and strictures, strong religious associations (particularly with *Shugendō*) and even its own argot.[86] This appears to be for two key reasons: one is that the hunting of bears, serow and other animals in the upland areas of Tōhoku necessitated team-work, because the geography and harsh weather conditions meant that hunting simply could not be achieved alone. This led to the establishment of upland settlements centred around hunting activity. Secondly, the climate and geography in these upland areas also meant that people could not make a living from agriculture alone, therefore hunting and gathering persisted as important activities to supplement food supplies over the long months of heavy snow when agriculture was not possible.[87] *Matagi* did engage in agriculture, but owing to a relative lack of cultivable land and a very short and relatively cool summer, agriculture was restricted to only a few crops and to a short growing season.[88]

The development of *matagi* culture is directly linked to developments in the economy. In the mid-sixteenth century, hunting became an economic activity increasingly important to the economy. This was stimulated by the food and material shortages concomitant with the constant warfare during the age of civil war (*sengoku jidai* 戦国時代 1493–1573) and the introduction of the gun. Hunters of the Tōhoku region were ideally placed to satisfy the demand for animal products. Toyama Prefecture became the centre for medicine peddlers, often travelling hunters who sold bear and other animal products as medicine. It was during this period that *matagi* hunting culture emerged as a distinct cultural entity.

A note on the use of the past tense when discussing *matagi* culture is prudent before progressing further with this discussion. Even today, there are places popularly known as '*matagi* villages' (マタギ集落) throughout Tōhoku, concentrated around the major mountain ranges, such as Ani Town in Akita and Oguni Village in Yamagata, which undoubtedly have *matagi* heritage. However, the *matagi* appellation is nowadays often employed to make the village appealing as a tourist destination, rather than being a true reflection of the way in which the people of the village now live. The term *matagi* is used principally to refer to the hunters, but in fact *matagi* culture was not possible without the whole community, and as such it may be more useful to refer to the '*matagi* village', of which not only the hunters themselves, but also women, children and elders, were an integral part. Not only hunting, but also activities such as the gathering of mountain vegetables and mushrooms were pivotal to the *matagi* lifestyle. Whereas there are still individuals who identify themselves as *matagi*, and some elements of *matagi* culture persist today, there are no longer such '*matagi* communities' which rely on traditional hunting as a subsistence strategy. For these reasons, the past tense will be used for consistency in this discussion of *matagi* culture.

*Matag*i hunted a variety of creatures, including the serow, fox and rabbit, but the bear was the largest, most dangerous, and the most valuable in terms of sustaining a living. *Matagi* hunting was governed by a framework of rules, rites and rituals. Hunting was to be conducted only as necessary for subsistence purposes, with genuine respect for the animals hunted.[89] *Matagi* believed that the hunting of animals was only as permitted by the *yama no kami*, and as such, hunting was carried out with a sense of utmost reverence.[90] A strict *matagi* doctrine was established as a means of resolving the

Figure 22: A display of the *Yamadachi konpon no maki* at the Ani–cho *Matagi* Museum in Akita. Photo: C.Knight.

spiritual conflict with Buddhist doctrine, which prohibited the taking of life（*sesshō* 殺生）and the consumption of meat. For the *matagi* of the Akita and Iwate regions, the 'mandate' to hunt in the mountains was provided by the authority of the Nikkō sect of *Shugendō* and was written in a 'secret document' (*hidensho* 秘伝書) called the *Yamadachi konpon-maki* 山立根本巻 (translating approximately as the '*matagi* foundation book') (Figure 22).[91] This book was apparently highly revered and passed from generation to generation.[92] It is unclear when these 'books' first appeared, but they are likely to date back to about the seventeenth century, when *matagi* culture was becoming established.[93]

Turning to the actual process and ritual surrounding bear-hunting, bears were generally hunted from late autumn to early winter, before they hibernated; or during spring, once they left the den. Bear-hunting techniques and strategies differed according to the physical environment. In steep mountain terrain, it was generally conducted in groups of up to ten people or more, using the *maki-gari* 巻き狩

り method. This is where a group of hunters surrounded the bear and drove it up the mountain to a waiting hunter where it was shot. In some areas, where the terrain was less rugged, hunting was generally carried out in small groups or by a single hunter. *Ana-gari* 穴狩り, in which a bear is lured out of its winter den and shot, was the preferred method in these cases.[94] In the case of group hunting, the group was led by a *shikari,* who had absolute authority during the hunting expedition, irrespective of his social position within the village. Bear hunting expeditions would last up to two weeks or more, and extend over large areas. *Matagi* built and utilised small huts in the mountains which acted as bases for their hunts.[95]

Hunting expeditions were both preceded and followed by rituals, and strict rules and taboos governed the hunt itself.[96] For example, singing, drinking or smoking were also prohibited while on a hunt.[97] Furthermore, when hunting in the mountains, *matagi* hunters used *yama kotoba* 山言詞 (mountain lexicon). One theory is that the purpose of this practice was to avoid disclosing to the animals they hunted what they planned to do.[98] Another is that it was to avoid the vulgarity of ordinary village language.[99] These language taboos were especially common in areas where hunting was conducted in large groups. In the Tōno area by contrast, in the relatively low altitude and undulating Kitakami Highlands of Iwate where hunting was conducted in small groups or as individuals, language taboos were largely not observed.[100] This may be explained by the fact that language taboos or substitute language appears to be prevalent in communities where communal cooperation is essential for tasks. For the same reason, substitute language, or *oki kotoba* 沖言葉 (open-sea argot), was also used by fishermen, and indeed, some of the substitute terms are common to both *yama kotoba* and *oki kotoba*.[101]

In respect to the bear, hunters used various aliases including, for example, *taishō*（大将 or 'boss'), *oyaji* (old man or 'boss'), *nushi* （主, master or god), and *ossama* (respectful but colloquial term for middle-aged man, uncle, or Buddhist priest).[102] The use of such aliases for the bear is consistent with the pattern observed among Boreal hunting cultures in which bear ceremonialism is evident. Usually these aliases take one of three forms: kinship terms such as 'father', 'uncle', 'granddad'; names which show reverence and respect such as 'king of the forest', 'sacred animal', 'great one', 'beautiful one'; or names which refer to physical characteristics of the bear, such as 'the barefoot one', 'the honey-eater' and 'old man with a blanket'.[103]

After a bear was shot, the *matagi* would carry out a ritual prayer for the bear's soul to ensure that its spirit rested in peace, and to prevent a curse being placed on the hunters by a vengeful bear spirit.[104] This ritual prayer was performed either back at the village, or in the mountains, in a flat, safe place.[105] On returning to the village with the bear carcass (either in one piece or cut into easily transportable

pieces), the hunters generally went to the shrine dedicated to the mountain god to pay their respects (see Figure 23). They would then gather at the *shikari*'s home, and the kill would be distributed equally among the group. In some cases, the group would then offer a toast to the mountain god, have a celebratory feast, and disband. [106] After butchering and distribution of the carcass, the bear's parts were utilised in a variety of ways, as discussed in the following Chapter.

Figure 23: A shrine dedicated to the mountain god near Ani Town in Akita. (Photo: C.Knight.)

An important aspect of *matagi* culture is the similarities evident between their rituals and customs and those of the Ainu of Hokkaidō. For instance, some of the *yama kotoba* lexicon discussed above are clearly of Ainu origin, for example: *wakka* (water); *setta* (dog); *sanpe* (heart) and *kappo* (skin). Other examples of words which bear a strong resemblance to words in Ainu are those for 'head' (*hakke* in *yama kotoba*, *pake* in Ainu); 'big' (*horo* in *yama kotoba*, *poro* in Ainu); and 'small child' (*hono* in *yama kotoba*, *pōno* in Ainu). Incidentally, many words in the Tōhoku dialect and some place names in Tōhoku also appear to have Ainu origins. For example, 'cow/cattle' in the Tōhoku dialect is *beko*, *peko* in Ainu.[107] Kuji (2002), also points out various other similarities between Ainu and *matagi* customs: for instance, before entering the mountains to hunt, both the Ainu and the *matagi* pray to their respective deities for a good hunt. Once the preparation stage has commenced, neither the Ainu nor the *matagi* hunter sleeps with his wife, and if a hunter's wife is pregnant, he must abstain from hunting altogether. Before a hunt, the Ainu offer an *inau* (sacred shaved sticks of willow) to the god of hunting, while the *matagi* offer a *nosa* (a ceremonial staff made from dried grass) to the *yama no kami* to pray for success and safety in the hunt.[108] These parallels may indicate a historical connection between Ainu and *matagi* cultures—it may be that some aspects of *matagi* ritual and beliefs have been influenced by Ainu culture or even have their origins in (Tōhoku) Ainu culture. In light of the earlier discussion regarding the interaction between the people of northern Tōhoku and Hokkaidō in the Jōmon, Epi-Jōmon and Satsumon Periods, and even following Tōhoku's assimilation within the Yamato empire, these similarities are perhaps to be expected. However, as discussed earlier in this chapter, this connection between *matagi* and Ainu culture is yet to be established conclusively.

Finally, from the foregoing discussion it has been demonstrated that the bear had special significance in the upland culture such as *matagi* communities, but how does this relate, if it does at all, to the

management of, and the relationship with, the bear in these areas today? Some people argue that these communities hold traditional knowledge that is invaluable to the management of the bear and human-bear conflict in contemporary Japan. For example, a town official working in the town of Ani in Akita relates how, when he first came from Tokyo to work in Ani, he had preconceived ideas about how to establish a 'system' of bear management in the area. However, he soon realised that there was already a system in Ani, one which has existed in the area for hundreds of years. The people of this traditional *matagi* village have carefully maintained the balance between human needs and the preservation of the wildlife they hunted through nothing more than their keen sense of observation and intuition for hundreds of years. For example, by observing changes in the forest, a *matagi* hunter is said to have been able 'feel' what the bear population is doing (i.e., whether it is increasing, decreasing or remaining stable) and react accordingly (i.e., by adjusting harvest rates). Effectively, this is what is referred to in modern terms as a population management system. Additionally, when in the forest, locals are said to be able to 'sense' whether bears are nearby, in which case they vacate the area. By doing so, they avoid the occurrence of human-bear conflict, a key goal of bear conservation and management. Furthermore, locals 'share' information about wildlife: a person out gathering *sansai* who detects the presence of bears will share that with someone who hunts, or visa versa. This flow of information between villagers also facilitates the 'bear management system'.[109] Within this framework of understanding, and living with the bear, the idea of the bear as a pest (*gaijū*) was entirely absent.

The question remains however, as to how this traditional approach to 'bear management' relates to the contemporary situation, given the social, economic, demographic and lifestyle changes that have taken place throughout Japan, including these upland areas. Namely, whether regional heritage such as a strong tradition of reverence for the bear found in *matagi* culture of upland Tōhoku influences interactions and management approaches in the Tōhoku region today. Chapter Ten, the case study of human-bear relations and its management in Iwate, will further explore this question by examining historical interactions with the bear and perceptions and interactions today.

8.6 Summary and conclusions

Jōmon and Yayoi Period artefacts found in the northern Honshū region suggest that the bear was accorded a high degree of significance and the possibility that some form of bear ritualism was practised. These archaeological finds may also support the suggestion that the bear symbolism and ritualism evident in the Tōhoku region was part of the distribution of bear-centred beliefs found in hunting societies around the Arctic circle (including Hokkaidō). The conceptualisation (or 'socialisation') of the natural landscape is believed to have originated in Jōmon times, and the division of upland space into spheres of not only geographic, but cultural and spiritual significance, has clearly influenced the historical human relationship with the bear in Japan. In upland hunting

culture, the bear was viewed as sacred and associated with the mountain deity, irrespective of whether or not it was the object of hunting. Hunting cultures dealt with the contradiction inherent in killing an animal regarded as sacred in different ways: in some regions this led to an outright ban on hunting. In most others, hunting was permitted, but certain actions were tabooed. The *matagi* culture of Tōhoku is a particularly clear example of this latter case: hunting of bears persisted but only under the special mandate of the mountain deity (*yama no kami)* and controlled by a strict set of rules and ritual to remain in the *yama no kami*'s favour. Imagery of the bear is generally positive in upland culture: it is connected with courage, strength, perseverance and maternal dedication.

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[1] It is thought that both species of bear inhabited Honshū until the end of the glacial period (about 10,000 years ago) and the brown bear was found at least as far south as south-western Honshū, as evidenced by finds of brown bear fossils at sites in Hiroshima and Yamaguchi Prefectures. As a result of the warming temperatures that led to the end of the glacial period, the brown bear was reduced to its current distribution, north of the Blakiston Line, in Hokkaidō (Ono, 1999: 32–5; Maita, 1998: 36). It should be noted that while wild boar do not generally inhabit the areas or heavy snow-fall north of Ibaragi and Fukushima Prefectures in present-day Japan, archaeological evidence shows that it inhabited Tōhoku in the Jōmon Period (Hata, 1998: 231).
[2] Abe, 1998: 221.
[3] Hazumi & Yoshii, 1994b: 28.
[4] Sekiguchi, 2006: 124.
[5] Fukuda, 1998: 169.
[6] Abe, 1998: 221; Fukuda, 1998: 169.
[7] Kobayashi, 2004: 97. Similiarly, there is possible evidence of a burial ceremony for dolphins in another Jōmon site in Ishikawa Prefecture (Ōtsuka (1988), as cited in Pearson, 1992: 82).
[8] Sutō, 2004: 3; Hata, 1998: 230. It is often difficult to distinguish between representations of bears and wild boars, particularly in the case of figurines. This even leads some scholars, such as Kobayashi, to conclude that there were no bear figurines made in the Jōmon and Yayoi Periods, only wild boar figurines (Kobayashi, 2004: 88).
[9] Sutō, 2004: 4
[10] Nagamine, 1986: 260–1.
[11] Watanabe (1990) cited in Pearson, 1992: 81. In fact, this has been used to support the argument that Jōmon society was not egalitarian as has been long thought, but a 'stratified' society, in which people engaged in specified tasks according to their status (see also Habu, 2004: 137–8; 176, 196–7, 256, for a discussion of the stratification of Jōmon society).
[12] Fukuda, 1998: 156.
[13] Fukuda, 1998: 169–70. In Hokkaidō, few wild boar related artefacts have been found, presumably due to the fact that they did not inhabit the region.
[14] There are other examples of human-made artefacts, the distribution of which is limited to southern Hokkaidō and northern Tōhoku. See for example, Doi, 1992: 119.
[15] Ono, 1999: 35.
[16] Yamaura & Ushiro, 1999: 46.
[17] Yamaura & Ushiro, 1999: 43–46.
[18] Fitzhugh, 1999: 10.
[19] Kobayashi, 2004: 175.
[20] This is an element of landscape design still practised by the Japanese today, called *shakkei* 借景. *Shakkei* refers to the design of a garden which deliberately includes a view of an aspect of the natural landscape outside the confines of the garden itself, such as a mountain or hills (Hendry, 1987: 88).
[21] Kobayashi, 2004: 175–6.
[22] Miyake, 2001: 181, 187.
[23] Miyake, 2001: 181.
[24] Blacker, 1975: 79–80. In several cases, these were originally thought to be burial goods, but further studies revealed that they were objects designed and positioned to induce the *kami* to enter them to manifest itself physically. They are early examples of *yorishiro* 寄代（a medium in which a god temporarily resides, or through which it can interact with the earthly realm). An example of a form of *yorishiro* still frequently seen today are the large trees in Shinto shrine enclosures encircled with *shimenawa* straw 'belts' that designate them as sacred objects.

[25] Hori, 1966. 16–23.
[26] Naumann suggests that this connection is evident in the offering of cakes or other foods made of millet or fruit, which were traditionally cultivated in these mountain fields, to the deity of the mountains/fields (Naumann, 1963: 345.)
[27] Kitamura, 1995: 125; Miyake, 2001: 79; 85; Hori, 1966: 7. One of the beliefs relating to mountains is concerned with mountains as watersheds or sources of streams. Many shrines were dedicated to the gods of surrounding mountains who were believed to bring the rain and protect the water sources essential to agriculture. Mountains were therefore seen as being integrally connected with agriculture (Hori, 1966: 6–7).
[28] See Schnell, n.d., for an in-depth discussion of this aspect.
[29] Hori observes, for example, that in many ancient Japanese myths, mountain deities are portrayed as female (Hori, 1966: 16).
[30] Hori, 1966: 16–23.
[31] Schnell, n.d..
[32] Hori, 1966: 6–7; Sasaki, 2006: 17–22. This notion that mountains are a meeting place between the profane world and the sacred world is also observed in other cultures. For example in India, festivals and religious observances to benefit the dead are held on mountains and sacred hills (Hori, 1966: 4–5).
[33] Hori, 1966: 8. These beliefs are reflected in the following poem, written by Princess Ōku, following the death of her brother Prince Ōtsu (d. A.D. 686):
I, living in this world,
From tomorrow look on
Mount Futakami as my brother,
(For today he was buried there) (*Manyōshū*).
[34] Sasaki, 2006: 17; Hori, 1966: 9. The role of the *yama* as a meeting place between the mortal world and 'other' world is also reflected in the *bon* 盆 festival, still a popular annual festival today. This festival is marked in some places by the lighting of large bonfires (*bonbi* 盆火) on mountaintops or hilltops to welcome or send back the spirits of the dead ancestors, who are thought to return to their places of birth in July or August each year (Hori, 1966: 11). The influence of the traditon of burying dead in the mountains is still reflected in the language used about death in some regions. For instance, Sasaki (2006: 17–8) notes that in Mukō City in Kyōto, where there are many historical tombs in the surrounding hills, people use expressions such as 'that old man will soon be going to the mountains' and 'his path to the mountains is already decided'. In Kawabata Yasunari's novel 'The sound of the mountain', the sound of the mountain portends death (Kawabata, 1981: 10).
[35] Miyake, 2001: 79.
[36] According to a study by Mizoguchi (n.d.), as cited in Hori (1966: 2), 90 per cent of the village shrines in Tōhoku Japan were served by *Shugendō* priests.
[37] Hori, 1966: 23.
[38] Miyake, 2001: 117.
[39] Hori, 1966: 23.
[40] Kitamura, 1995: 121–2.
[41] Kitamura, 1995: 124. For example, in one folktale ('Tenashi musume' 手なし娘), such phrases as '[they] went over one mountain, and over another...' and 'deep into the mountains, deep into the mountains' are used.
[42] Kitamura, 1995: 116.
[43] Ogura, 1993: 99.
[44] It should be noted that this relationship of guardianship between gods and bears is common throughout many traditional bear hunting cultures. See for example, Rockwell, 1991; Hallowell, 1926; Peyton et al (1999), as cited in Knight, 2003: 162.
[45] Miyao, 1989: 177. See also Chiba, 1969: 366–81.
[46] See for example, Yamazaki, 1990: 15–16; Chiba, 1969: 366–71.
[47] Itō, 1998: 67.
[48] Miyao, 1989: 64–65. The idea that the crescent moon marking was regarded as sacred in many places appears to conflict with an entry in the 1712 encyclopaedia *Wakansansaizue*, further discussed in Chapter Nine, which states that hunters actually aim for this mark. This sort of contradiction is not surprising, understood in the context that the author of the encyclopedia probably had no first-hand experience of hunting culture.
[49] Sakuma (1985), as cited in Miyao, 1989: 67.
[50] Miyao, 1989: 66–67.
[51] Chiba, 1969: 125; Miyao, 1989: 66–7.
[52] Miyao, 1989: 66.
[53] Miyao, 1989: 64–65.
[54] See for example, Sanders, 1993: 153; Shepard and Sanders, 1985: 114.
[55] In this area, the hunting of bears was prohibited by law until the Meiji Period. Even after the law was abolished in the beginning of the Meiji Period, the idea that the bear was sacred persisted, and when one hapless hunter became the first person in the district to kill a bear, he was faced with the vehement disapproval of his fellow-villagers, who took

the bear carcass from him and banished him from the village. As an indication of how localised these beliefs could be, in the valley adjacent to the Kiso Mountains, this prohibition did not exist (Miyao, 1989: 178).
[56] Sakuma (1980), as cited in Knight, 2003: 185; Yamazaki, 1990: 26; Sasaki, 1998: 47.
[57] Nishina, 1979, as cited in Miyao, 1989: 68. Similarly, there were traditionally strictures against killing pregnant whales, or whales accompanied by their young. See, for example, Kalland and Moeran, 1990: 150–1.
[58] Sakuma (1980), Ogura (1993), as cited in Knight, 2003: 62; Tōno Municipal Museum, 1998: 40. This connection between the bear and weather phenomena is also evident among other bear-hunting cultures. Many North American tribes identified the bear with thunder, because they believed that bears emerged from their dens with the first thunder of spring. In some northern European languages, the god of thunder and the bear are synonymous (Rockwell, 1991: 189).
[59] Ezaki, 1993e: 98.
[60] Chiba 1969: 381.
[61] Chiba 1969: 365–70.
[62] Kodansha, 1993: vol. 2, 1487; Uda, 1985: vol. 13, 242.
[63] Hazumi & Yoshii, 1993b: 29.
[64] Hazumi & Yoshii, 1993b: 29.
[65] The other animals are the serow, monkey, *yamadori* (mountain bird) and char (a species of fish).
[66] Chiba 1969: 379.
[67] See Reader & Tanabe, 1998 for a comprehensive discussion of this aspect of Japanese religious life. See also Henshall, 1999: 21.
[68] *Kaisan* literally means to 'open a mountain' (*yama o hiraku* 山を開く), a process to release its 'latent holiness' (Blacker 1975: 245).
[69] From the late Heian period onwards, pilgrimages to these *Shugendō* centres in sacred mountains became an important religious practice among the court aristocracy, and the practice spread to the non-aristocratic classes from the Kamakura period (A.D. 1185–1333) onwards (Itō, 1998: 95–96).
[70] Bocking, 1996: 26
[71] Itō, 1998: 95–96.
[72] Fukue, n.d.
[73] Iio, 1985: vol. 4, 371; Fukai, 1985, vol. 14, 797.
[74] Toyama Prefecture Tateyama Hakubutsukan, 1994: 34, figure IV–12.
[75] *Kadokawa Nihon Chimei Daijiten Hensan Iinkai* and Takeuchi, 1978: 636; Tōno Municipal Museum, 1998: 42. As is the case with many of these legends, there is some disagreement about such details as dates. However, both sources cite the early 800s.
[76] Anon, (2004).
[77] *Ema* literally means 'horse picture' and refers to small wooden tablets on which people write their wishes at Shinto shrines and Buddhist temples. In the Muromachi (A.D. 1333–1568) and Edo periods (A.D. 1615–1868) the *ō-ema*, or large sized *ema*, developed as a professional art form.
[78] Knight, 2003: 184–5.
[79] Miyao, 1989: 18, 193; Knight, 2003: 166. The ancient Greeks and Romans also associated the bear with maternal devotion (Sanders, 1993: 152; Shepard & Sanders, 1985: 113). However, this association can be traced back to much earlier times: small clay figurines of a mother and child, both 'wearing bear masks' were made by the people of the Vinca culture around 5,000 B.C. (Shepard & Sanders, 1985: 112).
[80] Tabuchi (1992), as cited in Knight, 2003: 166.
[81] Nakaji, 2002.
[82] From the translation by John Bester in the 1972 collection of Miyazaki's translated works, *Winds from afar*.
[83] Miyao 1989: 191–3. The story, called *Tsukinowaguma*, is now considered a masterpiece of childrens' fiction in Japan. Born in Nagano in 1905, Muku Hatojū was a prolific writer of fiction for children. Many of his stories featured animals.
[84] There are various theories as to the origin of the word *matagi*, including that it is derived from the Ainu term for those who hunt in the snow (rendered in *romaji* as *mataunba*) while others think it is derived from the bark of the Japanese linden tree, which hunters used for clothing. Yanagita Kunio believed that it is was derived from the name for the staff hunters used for walking (*matatsubo*). (See Tōno Municipal Museum (1998: 4–5) for details of these and other theories.) *Matagi* are also known as *yamabito* or *yamadachi* in some areas.
[85] See for example Miyao, 1989: 66.
[86] Taguchi's research in the development of hunting culture in Japan points to *matagi* villages and culture becoming established in the Tōhoku region from around the end of the sixteenth century (Taguchi, 2000: 72). While hunting is likely to have been practised in many other upland regions of Japan, unlike the *matagi*, they do not appear to have developed such an organised body of folklore and literature pertaining to their hunting lifestyle, and therefore it is more problematic for ethnologists to document.
[87] Tōno Municipal Museum, 1998: 7. In Akita, where land suitable for the cultivation of rice and other crops is scarce and the climate is cold and harsh, the people of the Ani district relied heavily on hunting and the gathering of wild

foods (edible plants, fungi, nuts) from the forest to supplement their food supplies. Hunters from these areas travelled around the country selling bear parts such as gall, blood and bone as medicines (Matagi Museum, n.d.: 1).
[88] Taguchi, n.d.: 17. With the introduction of chemical fertilisers and plant breeding technology since the Second World War, settlements were able to rely more heavily on agriculture, as these advances allowed them to grow rice crops for longer and in places where it was not previously viable.
[89] Maita, 1998: 46. Not only did *matagi* strictures stipulate that bears should only be hunted at a level required for subsistence, but harvest rates were also limited by the weapons available to hunters: originally spears, rather than guns. While the use of guns by hunters is first recorded in Shinshū (Nagano) in 1573, it was not until the Edo period (A.D. 1615–1868) that guns became widely used (Murakami, 2004a: 251). In 1895, the hunting law was introduced, which permitted anyone to hunt provided they did so according to the law. In the mid-Meiji period, the single-shot Murata rifle became readily available in Japan and increasingly bears were killed as agricultural and livestock pests or as a source of saleable goods such as gall bladder, meat and hides.
[90] Hazumi & Yoshii, 1994b: 29; Naumann, 1963: 341.
[91] *Yamadachi* was the name used in some regions by *matagi*. See endnote 84. This book was also known as *Yamadachiyurai-ki* 山立由来記 (‘Account of the origins of the *Yamadachi*’) in some regions.
[92] Tōno Municipal Museum, 1998: 5.
[93] Some historians date this document to 1193, owing to its purported connection with the famous deer-hunt at the foot of Mt Fuji by Minamoto Yoritomo, founder of the Kamakura Period shogunate, related in the Tales of Soga. However, there is no conclusive evidence supporting this dating of the document, and both the style of language and signature point to its dating to the Muromachi Period. (See Takahashi, 1994, for a comprehensive discussion of this aspect.)
[94] Tōno Municipal Museum, 1998: 33.
[95] Ōta, 1998: 5–6.
[96] Such verbal taboos are also common among fishermen and whalers in Japan (see Kalland and Moeran, 1990).
[97] Tōno Municipal Museum, 1998: 5.
[98] Kaneko, 1993: 101; Azumane, 1993: 9.
[99] Tōno Municipal Museum, 1998: 6.
[100] Tōno Municipal Museum, 1998: 40.
[101] See Ōtō (1963: 116–7) for a discussion of this subject. Ōtō poses the question as to why taboos, including substitute language, have survived in fishing communities, but not to the same extent among farmers. He suggests that while farming required communal cooperation for many tasks, it is becoming increasingly automated and based on the labour of individuals. However fishing remains a group activity where one person’s actions have an immediate impact on others. This reasoning may also be applied to *matagi* group hunting.
[102] Kaneko, 1993: 101.
[103] Lot-Falk (1953), as cited in Miyao, 1989: 61.
[104] In Japanese it is referred to variously as *kebokai*; *indō o watasu* (引導を渡す); *indō;* or *mizuhiki* (Tōno Municipal Museum, 1998: 13; 39).
[105] Tōno Municipal Museum, 1998: 13. Again, these customs are found in other bear hunting cultures. Rockwell (1991: 183) notes that in bear hunting cultures in both Eurasia and America, hunters directed prayers to a supernatural being, which acted as the ‘keeper of the game’. Many of these groups appear to have believed that the bear’s spirit went to its ‘owner’ or ‘guardian’ after being eaten and reported how it had been treated by the hunters. The supernatural being would either release more game or withhold it, depending on the animal’s treatment. The aspect of atonement is also common to bear hunting peoples on both continents: in north eastern North America for example, the hunter would tell the slain animal that he was sorry, and ask the animal not to be angry.
[106] Tōno Municipal Museum, 1998: 13.
[107] Kuji, 2002: 80–1.
[108] Kuji, 2002: 206; See also Nakazawa, 2002: 156, for a discussion of the similarities between the hunting cultures of the Ainu, *matagi* and indigenous peoples of the northeast coast of North America.
[109] Komatsu Takeshi 小松武志, personal communication, May 28, 2005 (Ani, Akita).

Chapter Nine: The bear in lowland culture—the 'wild bear' of the *okuyama*

9.1 Introduction

The previous chapter examined the significance of the bear in upland culture in Japan. Owing to the political and social isolation of these regions, upland culture has until recently been marginalised and largely ignored by 'mainstream' Japanese society. Instead, it is the culture and perceptions of the lowland society which have predominated, and which persist today within the framework of the contemporary approach to wildlife management. This chapter will therefore focus on representations of the bear in the mainstream 'lowland' culture, from early Japan through to the twentieth century. Poetry and other literature, both fiction and non-fiction, folktales, the visual arts, as well as place and people names, will be examined in order to ascertain the nature of imagery and representations of the bear. This will provide a useful indication of how the bear was perceived by the lowland dweller, who rarely had any actual contact with the bear. This discussion will be followed by an examination of the commodification of bear parts, which is a dimension of bear-related culture which is common to both lowland and upland society. While bear meat, hides and other parts have been used for subsistence and magico-religious purposes since prehistoric times, it was only after the introduction of information regarding the medicinal use of bear parts from China, and the advent of a market economy, that bear parts were traded as commodities. Finally, some comparisons will be made concerning the significance and perception of the bear in upland and lowland culture, and some conclusions drawn.

9.2 Bears in 'lowland' culture: the *araguma*

The Japanese literary and visual arts are renowned for their frequent use of motifs and images from nature. Trees, flowers, birds, insects and, to a lesser extent, animals such as deer, monkeys and rabbits often appear in poetry, prose and paintings, but larger animals such as wolves and bears rarely appear. In fact, some commentators on Japanese art and culture appear to deny the very existence of bears, as was noted in Chapter One.[1] When the bear does appear in arts and literature, the imagery employed provides insight into how the bear was viewed by the predominantly agrarian and urban populace of pre-modern Japan.

Firstly turning to poetry: to the Heian Japanese, poetry-making was not limited to an elite group of professional poets. It was an essential social skill for all literate members of society—a form of communication and entertainment employed in every-day life by members of high society. However, a survey of poetry collections from the Heian Period (A.D. 794–1185), from which many of the major historical poetry collections date, reveals only a small number of poems with references to the bear. For example, in the *Manyōshū* 万葉集 (the oldest extant anthology of Japanese poetry, compiled A.D.

744–759), there is one poem referring to the bear. In comparison, there are a few hundred poems which refer to birds, and about 70 poems which mention deer or stags in this anthology. Even wild boar are mentioned several times.

The text of the *Manyōshū* poem referencing the bear reads:

> 荒熊の　住むといふ山の　師歯迫山　責めて問ふとも　汝が名は　告らじ[2]
>
> On Mt. Shihase, where bears are said to live, even were I to be pressed, I would not reveal your name.[3]

According to Kojima et al (1973), the author in this case is a woman, who despite being repeatedly asked by her mother, refuses to tell her the name of her lover.[4] The whereabouts of Mt Shihase is unknown, but it is referred to in other poems of this period also.

In other Heian Period collections, such as the *Shūiwakashū* 拾遺和歌集 (the third imperial anthology of classical Japanese poetry probably completed between A.D. 1005 and 1007), the bear fares no better. One poem referring to the bear appears in Book Seven of this collection:

> 身をすてて山に入りにし我なれは くまのくらはむこともおほえす[5]
>
> Since I have abandoned the world for the life of a mountain ascetic, I think not about being eaten by (the) bears.

The author is a Buddhist monk who is a head-priest of a mountain temple. The phrase ‘I think not about being eaten by bears’ may be an allusion to a Buddhist legend in which Buddha was eaten by a tiger. [6]

The bear makes a few more appearances in an anthology called *Fubokuwakashō* 夫木和歌抄, published in A.D. 1310. Many poems which were not included in the earlier imperial anthologies, but were otherwise regarded as ‘worthy’, were published in this anthology. The bear features in several poems, including the following:

> みやまちにー住む荒熊もー子をおもふー友にはなつくー心あるらむ
>
> Even the bear, which lives deep in the mountains, feels love—it cares for its children with affection.

> あら熊のーなれて住むなるーしはせ山ー山もいかにかー烈しかるらむ
>
> How precipitous are the mountains of Mt Shihase, where the bear lives.

あら熊のーすみける谷をーとなりにてー都に遠きー柴の庵かな

Ah, my hut made of brushwood, so far from the capital, beside the valley where bears live.

ゆつるはのーときはのいろもーうつもれぬー荒熊やまにー雪のふれれは

Even the evergreen of the *yuzuriha* plant is concealed on the snow-covered mountain where bears live (like the undying love we do not reveal in this rough world).[7]

おく山にー住むあら熊のー月のわにー夜めこそいととー雲らさるらめ

My eyes are surely not becoming blurred with tears at the moon's halo, like the *tsukinowa* of the bear which lives in the mountains.[8]

人なれぬーすかの荒野のーあら熊はーかるやの崎もーしらすかほなる

The bear of the wilderness of Suga, knowing nothing of man, looks blankly at the hunter's arrow.

And a variation of this poem:

人なれぬすがの荒野のあら熊のいるやの崎もしらずがほなる

Yanosaki, where there are the wild bears of the wilderness in Suga and where people are not known, likewise seems to pretend not to know [me].

信濃なるすがの荒野に住む熊のおそろしきまでぬるる袖かな

How damp are my sleeves [with tears] for fear of the bears that inhabit the wilderness of Suga in Shinano!

熊のすむ苔の岩山おそろしみうべなりけりな人も通はぬ

Nobody passes by. They/I/you did not submit to fear, in the mountains of mossy rock inhabited by bears!

One significant aspect of the poems above is that few refer to a direct fear of the bear *itself*. Certainly, the bear was clearly considered 'wild', as demonstrated by the appellation for the bear employed in most poems (*araguma* 荒熊, literally 'wild bear'). But there are no references to attacks by the bear (except for the allusion to being eaten, which is probably not to be taken literally, but is rather an analogy to the Chinese example of the priest being eaten by a tiger). Instead, the majority refer to the bear as a lonely inhabitant of the remote *okuyama*, a realm of nature towards which there is a sense of unease, and perhaps even fear, owing to its remoteness, wildness and loneliness. A sense of empathy

is also possible for this solitary *okuyama*-dweller (the *okuyama* being a place where no right-minded city-dweller would want to live).

As noted, these *Manyōshū* and *Fubokuwakashō* poems frequently use the term *araguma*, meaning 'wild bear', to refer to the bear.[9] This term was still being used as an appellation for the bear in 1712, when Chikamatsu Monzaemon (1653–1724) wrote a play called *Komochi yamauba* 嫗山姥, based on the Kintarō folktale, in which there are the following lines:

> 荒熊の片足をつかんでくるくると回し
> 二、三間も投げ飛ばし
> ああくたびれた乳が飲みたいと母が膝にぞもたれける
>
> Grabbing the bear (*araguma*) by its leg, [Kintaro] twirls it around, and hurls it a few metres,
> Then, resting on his mother's knee, says 'Oh, I'm tired—I want to drink mother's milk'.[10]

Figure 24: Kintaro 'riding' a bear, by Utagawa Toyokuni (1769–1825)

It is unclear what conclusions should be drawn from the use of the term *araguma*—it could simply be that it is a set phrase traditionally employed in narrative literature (much like the English example, 'the sly fox').[11] Nevertheless, it is hard to avoid the conclusion that the bear was associated with the state of being 'wild' (*araarashii* 荒々しい). This is supported by the fact that any references to the bear are frequently made in association with the *okuyama*, to the extent that the usage of the term (*araguma*) almost appears to be metonymical for this geographical realm. There may even be an etymological connection between bears (*kuma*) and *okuyama*: one of the readings for the Chinese character for *oku* 奥 ('deep') is *kuma*. When read in this way, it means 'a place where a river goes deep [into the mountains]'.[12] *Oku* in this sense is synonymous with *kuma* 隈, which means 'a place deep in the mountains, or where a river/stream goes deep [into the mountains]', and was often substituted with *kuma* 熊 (bear) in place names.[13]

Turning now to historical literature, a survey of representative works reveals that there is similarly relatively little written about the bear. One of the earliest mentions of the bear is in one episode in *Kojiki* 古事記, completed in A.D. 712, and the oldest extant work documenting the history and

mythology of Japan. The entry relates an episode in which 'unruly deities' of the Kumano mountains appear in the form of a large bear and cast a spell over Jinmu Tennō 神武天皇 (the putative founding ancestor of the Japanese imperial line) and his men. Jinmu Tennō slays the bear, and the spell is lifted.[14] Sekiguchi (2006) suggests that this episode relates to Jinmu Tennō's conquest of 'eastern' Japan:[15] the unruly deities which appear in the form of the bear represent the people of the Kumano region who resisted his conquest.[16] Parenthetically, the place in which the bear appears, Kumano 熊野, located in the present-day Wakayama Prefecture, literally means 'bear plain', though the *no* in this case probably refers to 'natural grasslands', as the area is mountainous.[17]

There is one further reference to the bear in the *Kojiki* (and the later *Nihonshoki* 日本書紀, completed in A.D. 720), though only in the context of the etymology of the name of a region/people. However, this instance may nevertheless reinforce the idea that the bear was associated with unruliness and rebelliousness by the Yamato Japanese. Episodes in the *Kojiki* refer to the conquering of two brothers of the 'Kumaso tribe' (rendered in Japanese *manyōgana*, or phonetic representation, variously as 熊曽, 熊襲, and 球磨曽於): in Emperor Keiko's words, '…unsubmissive, disrespectful people.'[18] Nakamura (1985) suggests that the character for bear was an appropriate choice for a people who consistently rebelled against the Yamato forces, signifying the characteristics of 'bravery' and 'rebel/insurgent'.[19]

Altogether, there are eight references to the bear in the 'Six National Histories' (*Rikkokushi* 立国史, the six official histories commissioned by the Imperial government, which began with *Nihonshoki*). References relate mainly to bear skins (used as mats on which to sit), which were highly valued items reserved for guests of honour.[20] However, it appears unlikely that these skins were derived from the Asiatic black bear: in the three examples found in Book II of *Nihonshoki*, Aston (1972, first published 1896) suggests that these are references to either polar bears or brown bears.[21]

Asiatic black bears are repeatedly referred to in *Fudoki* 風土記 (a collection of cultural and geographical information relating to the Japanese provinces, compiled in the eighth century). Bear references appear in the records relating to Harima province (the south-western region of present-day Hyōgo Prefecture) and Izumo province, (the eastern part of present-day Shimane Prefecture), often in conjunction with wolves.[22] The references appear to relate to places inhabited by the bear, but the inventory-like nature of the references means that it is not possible to interpret anything from them in respect to the way in which the bear was perceived by the compilers of the records.[23]

The bear also appears in a number of encyclopaedia-type reference works. The earliest such example is an entry for the bear in the *Wamyōruijūshō*（倭名類聚鈔）, a Chinese-Japanese dictionary compiled by Minamoto no Shitagu around 934.[24] The entry notes that the *wamyō* 和名, or Japanese name for bear, is 久萬 (the *manyōgana* for 'kuma') and notes: 'It resembles a brown bear (of Hokkaidō) but is smaller'.[25] Several centuries later, in the Edo Period (A.D. 1615–1868), the bear appears more frequently in reference works. Examples of the use of bear parts and meat in cooking and medicine appear in the *Honchōshokukagami*（本朝食鑑, an encyclopaedia of plants and animals used for foods and medicines) published in 1697.[26] There is an entry on the bear in *Wakansansaizue* 倭漢三才図会, an illustrated encyclopaedia published in 1712.[27] The entry states: 'It [the bear] has a crescent-moon shaped white patch of fur on its chest. Referred to as *tsuki no wa* in colloquial Japanese. It always tries to cover this with its paw [because] this is what the hunters aim for. If the bear is hit here it is killed.'[28] *Yamatohonzō* 大和本草, a seminal study of Japanese plants published in 1708 and authored by Japanese Neo-Confucianist and botanist Kaibara Ekiken, contained a similar entry.[29] An entry on bears also appears in *Kojiruien* 古事類苑, a government-sponsored encyclopaedia published between 1896 and 1913.[30] The entry states of the bear: 'owing to its black coat, [the word] *kuma* is associated with black, and so the word is used to name things which also have black bodies, such as *kuma-zemi* [a type of cicada], *kuma-bachi* [a type of hornet] and so on'.[31]

It is worth noting that the reference to *tsuki no wa* [*guma*] is absent in the earlier reference in the *Wamyōruijūshō* where the bear is simply referred to as *kuma*. It appears from the entry in the *Wakansansaizue* that the appellation *tsuki no waguma* was derived from colloquial Japanese, and, judging from the reference to hunting, probably from colloquialisms used in upland communities. It is unclear when this appellation entered into standard Japanese.

Turning to fictional works, the bear appears in the Edo Period work *Tōyūki* 東遊記 (Journey to the East), in which a scene of two hunters attempting to kill a bear in its den is depicted.[32] The bear is also mentioned in Suzuki Bokushi's 鈴木牧之 *Hokuetsu seppu* 北越雪譜 (Annals of snow in the Hokuetsu region), a collection of essays written about Echigo Province (present-day Niigata Prefecture) published between 1836 and 1842. One story which appears in these essays more than once is of a bear helping a man who falls into its den. The author apparently heard this story from an elderly man who claimed to have had this unusual experience himself.[33]

There are numerous folktales in Japan which, like those of other countries, feature animals behaving as if they were humans. These tales were mainly told for their entertainment value but many are also intended to be morally instructive. Compared to other mammals such as the fox, raccoon dog (*tanuki)*

and monkey, the bear appears less frequently in folktales, and when it does, it is usually not as a central character in the story.[34] Additionally, when it does feature, it is often as a character which is interchangeable with other animals, depending on the particular version of the tale. For example, the bear features in some versions of trickster type tales (*hito bōon* 人忘恩 in Japanese), in which a man is saved by another man or an animal, but then sets out to deceive or harm the animal or human which helped him.[35] In *Shippo no tsuri* (tail-fishing), a monkey/rabbit/bear is deceived by an otter/fox/badger/crab into fishing with its tail, the result of which is that its tail is frozen in ice and comes off (thereby explaining the reason why the monkey/rabbit/bear only has a short tail). In *Kachikachi yama* (Kachikachi mountain), a tanuki/bear/wolf/monkey or other animal plays the role of a trickster who is eventually outwitted by a rabbit.[36] *Kitsune to kuma* (The fox and the bear), is one of the few tales in which the bear appears as a central character and is not interchangeable with other animals. In this tale, the bear is deceived repeatedly by the fox, until the fox dies while trying to capture a horse.[37] The bear also features in the popular Japanese folktale called *Kintarō*, (which is the subject of both Utagawa's prints, and of Chikamatsu Monzaemon's play mentioned above) about a boy born to a *yamuaba* (mountain witch) on Mount Ashigara. The boy is born with supernatural strength, and one of his exploits is his ability to wrestle with bears and other beasts.[38]

Because in most cases the bear features in a role in which other animals appear interchangeably, it is difficult to draw any conclusions from these folktales in respect to how the bear was perceived historically. However, the fact that the bear appears far less frequently than more common animal characters such as the monkey, raccoon-dog, rabbit or fox may indicate that the bear featured less prominently in the consciousness of the Japanese. This also concurs with Kitamura's suggestion, discussed in the previous chapter, that the Japanese are more comfortable with the realm of the *satoyama*, and the creatures which inhabit it, as opposed to creatures inhabiting the realm of the *okuyama*, such as the wolf or the bear. Incidentally, in these folktales, creatures which inhabit nature closer to human-settlement (*satoyama)*, such as rabbits or raccoon dogs, are most common. (It should be further noted that, as far as the author is aware, there are no instances of the serow, a highly elusive creature which inhabits higher altitude mountain terrain, featuring in a traditional folktale. This may be said to corroborate the stronger place of *satoyama* and its creatures in the cultural consciousness of the Japanese.)

Bears are rarely the subject of visual art. One of the few pictures depicting bears is one by Utagawa Kuniyoshi 歌川国芳 (1798–1861). A colour woodblock print completed in 1849, it depicts one of Minamoto Yoshitsune's retainers, Kamei Rokurō (Shigekiyo) making his debut by fighting a black bear in the snow, watched by Yoshitsune and other retainers (Figure 25).[39] Another picture by the same artist, produced in 1860, is of Kaidō Maru 怪童丸 the childhood name of Sakata no Kintoki 坂

Figure 25: *Yoshitsune kōshin: shitennō shusse kagami no uchi*, by Utagawa Kuniyoshi. (Source: Stirling (ed.))

田金時, on whom the folktale *Kintaro* was based, who later became a retainer of samurai Minamoto Yorimitsu. In the picture, Kaidō Maru is depicted by a waterfall wielding a large axe, with his foot on the head of a prostrate bear-cub.[40] What is notable about these pictures (as it is with the Utagawa Toyokuni print in Figure 24), is that the bears depicted resemble more closely the tigers depicted in Chinese-style prints of this and earlier eras (note especially the shape of the head, the long whiskers, the long limbs and relatively long and thin body) than the Asiatic black bear. This suggests that these artists had little idea what the bear actually looked like, and instead painted it using Chinese paintings as a model (as was the case with other animals), or possibly, animal skins.

In contrast to its relatively low profile in the arts and literature, the character 熊 (*kuma*) features relatively commonly in place names or family names. Before examining this aspect further, and given the importance of the etymology of Chinese characters (*kanji*) to the meaning they carry and therefore their usage, a brief outline of the etymology of the character used to represent the Japanese word for bear (*kuma*) is important. As with other characters, the character for *kuma* 熊 originated in China. The character is a composite meaning, made up of 能, meaning ‘capacity’ or ‘to enhance’ and 火, meaning ‘fire’, and made reference to the fact that the flesh of the bear, which is thick with fat, burns well. Thus, the Chinese word *yūyū* 熊熊, written using the characters for bear, referred to a fire burning vigorously. In ancient China, the bear was thought to be an animal representing fire.[41] This association with fire appears to have weakened since the character was adopted by the Japanese: there are no references to this association in the Japanese literature as far as the present author is aware. The *kanji* 熊 is used both in the *Kojiki* text and in the *Manyōshū* poem noted earlier, indicating that this character was used to express the word for bear from the early eighth century at least.

As regards the use of the *kanji* for *kuma* (bear) in people and place names, in O'Neill's *Japanese Names* (1972), 45 place-names, family-names and first-names are listed which begin with *kuma*.[42] In comparison, 58 name are listed beginning with *shika* (deer), 41 are listed beginning with the character for *inoshishi* (wild boar), and 33 are listed beginning with the character for horse. Names beginning with the characters for fox and wolf only number three and two respectively. Of course, this comparison is only indicative of usage: in some areas, certain animal names have been used more widely than in others.[43] Knight (2003) notes for instance that in the Kii Peninsula, boys' names containing the word for *kuma* are quite common: for example, Kumao or 'bear man', Kumakazu or 'bear one', for the first born son, and Kumami or 'bear three' for the third son.[44] Kii Peninsula is a mountainous area characterised by upland villages, and it may be that this is a reflection of the upland lifestyle which was traditionally prevalent in this area. The name 'Arakuma', meaning 'wild bear' also appears to be a popular (adopted) name among sumo wrestlers. Judging from such usage in male names, there appears to be an association with masculinity and strength, which can be traced back to Chinese folklore: in ancient China, there was a belief that if one had a dream in which a bear appeared, a son would be born.[45]

Paradoxical though it may seem, one explanation for the relatively high frequency of some animals such as the bear in people and place names in contrast to the low frequency of others may be connected to the low profile of these animals in folklore, compared to the strong beliefs (both negative and positive) associated with other animals which feature more prevalently in folklore. For example, the fox features prominently in Japanese folklore, appearing in the literature both as good and bad omens, and is thought to be capable of shape-shifting, poltergeist-like acts and mischievous tricks.[46] It is thought to be capable of witchcraft and can possess human beings, driving them insane.[47] On the other hand, the fox is also regarded as sacred, and is inextricably associated with the *kami* Inari, the deity of cereals, and especially, rice—it is thus an animal symbol central to Japanese culture. Given the fox's strong association with both the sacred and the malevolent in lowland folklore, particularly in the form of fox-possession, it is perhaps not surprising that it was not widely used for names of either places or people, as this may have been regarded as inauspicious.

Similarly, the wolf, which also features only rarely in people and place names, was also regarded with both reverence and fear.[48] In much folklore, it is considered to be protective and benelovent. It is an *otsukai* (messenger) at many Shinto shrines throughout Japan, the most famous being Mitsumine Shrine in Saitama Prefecture. The *ofuda* 御札 (charm) from this shrine is used by farmers throughout Japan to protect their fields against pests such as wild boar. This probably stems from the fact that the wolf did actually prey on animals such as boar, deer and wild rabbits which raided crops, thereby indirectly protecting crops from pestilence.[49]

In comparison to these animals with a strong significance in folklore, in the case of the bear, there was not a strong association with deities or special powers in lowland culture, either benign or malevolent. This may to a certain extent be explained by its low profile in Chinese folklore, which has strongly influenced Japanese folklore. It is the present author's suggestion that the bear's relative cultural 'neutrality' in mainstream culture, in the respect that it was not associated with shape-shifting, witch-craft, or with any particular deities, may have led to its high use in names, as seen above.

As demonstrated in the foregoing discussion, the low historical profile of the bear in art, literature and folktales is striking. While it is impossible to establish the precise reasons for this, the present author proposes that there are two contributing factors. Firstly, it is a product of the bear's lack of assigned significance in the culture introduced from the continent: unlike other animals, bears also featured only rarely in Chinese literature, art and folklore.[50] For instance, the fox and *tanuki* or raccoon dog, which both feature prominently in Chinese folklore, also tend to feature prominently in Japanese folklore.[51] The influence of Chinese literature and scholarship on the Japanese perception of wildlife and the natural environment is highlighted by a number of scholars, including Chiba (1995), in respect to the Japanese perception of the mountains and the creatures which inhabit them, and Kurisu (2004), in the case of wolves, and therefore it is entirely conceivable that Chinese perceptions (or lack of, in this case) were at work in respect to the bear also, especially during periods when Japanese scholars were heavily influenced by Chinese scholarship and literature. Secondly, being a creature of the forested uplands which avoided human contact wherever possible, the bear would have had a very low *physical* profile in the lives of most Japanese, who lived in the lowland plains. In comparison, the raccoon dog or monkey, both of which inhabit areas adjacent to human-inhabited areas, are likely to have been much more visible in the lives of Japanese.

9.3 The commodification of bears

As was demonstrated in the previous chapter, meat and hides from bears have been utilised for clothing and food since the first hunters and gatherers established themselves on the Japanese archipelago, and archaeological finds from the Jōmon and Yayoi Periods have included bear bones and teeth (used for pendants and probably for magico-religious purposes). However, bear parts did not become 'commodities' until information concerning the medicinal properties of bear parts (originally introduced from China in the Heian Period (A.D. 794–1185)) spread to the regions concomitant with the development of regional market economies in the sixteenth century. Thus the trade of bear parts for medicinal and other purposes has its origins in the Yamato culture of lowland central Japan, developing as a result of continental influences. On the other hand, it was the demand for bear-derived products in the Edo Period (A.D. 1615–1868) which was a key driver leading to the establishment of *matagi* upland culture. Therefore, the commodification of bear parts is one dimension of the human-bear relationship which is equally important in both upland and lowland

cultures. Taguchi (2004) links the commodification of bear parts with the active expansion of agricultural lands during the Edo Period. He proposes that this brought into being a complementary relationship between farmers and hunters, whereby hunters were increasingly called on by farmers to cull wildlife as pests, thereby helping farmers to protect their fields from pestilence. Hunters were rewarded both directly, by the farmers, and indirectly, by selling parts derived from the animals they harvested.[52] Central to that trade was bear parts use for medicinal purposes.

Figure 26: A Tōno hunter holding frozen bear fat. Bear fat is most plentiful when taken from a bear caught prior to, or early in, the hibernation period. **(**Photo: C.Knight.)

Bear parts have been used to treat a range of ailments for hundreds of years, probably after information on their curative effects came to Japan from China, along with information regarding the medicinal use of other animals.[53] The bear's brain (in charred form) was believed to be a cure for head-aches or sickness during pregnancy; the heart and lungs were used for asthma;[54] the paws were used to treat neuralgia and rheumatism; and body fat (see Figure 26) was used to treat cuts, burns, various skin complaints and various other ailments.[55] The bear's intestine, dried, was used as a charm for safe childbirth, stemming from the perception that bears have easy births (owing to the relatively small size of the cub when it is born).[56] Bear bones, ground into a powder, were used as an antidote for various complaints, particularly psychological disorders.[57] Most important of all was the gall bladder (known as the *i* 胃 or *tannō* 胆嚢), a muscular sac close to the liver (see Figure 27). (The liver was sometimes used as medicine also, though less commonly than the gall bladder.[58]) Bear gall was, and still is, used as a *myōyaku* 妙薬, or panacea, for a wide range of illnesses, including intestinal, liver and heart disorders.[59] An indication of the importance of bear parts as medicine is the existence—until recently—of what were known as *kuma no mise* or 'bear shops', generally in more remote, upland areas.[60]

As indicated, the use of bear gall bladder, as well as other bear parts, for medical purposes has its origins in China. The use of gall bladder is documented, for example, in the sixth century work *Shen-nung pen ts'ao ching*神農本草経 (*Divine Husbandman's Materia Medica*), the earliest extant Chinese pharmacopoeia.[61] While it is not clear when the gall bladder first came into use in Japan, its medicinal application is recorded in a document published in A.D. 927 by the imperial hospital.[62] The

Figure 27: Dried bear gall bladders. They are dried between two wooden boards, taking several weeks before ready for sale or use. (Photo: C. Knight.)

document listed all known medicines and dosages in use in Japan at that time, and prescribed which provinces were to provide bear galls as tribute to the imperial court.[63] An animal gall bladder is also one of the items preserved as one of the imperial treasures of the *Shōsōin* 正倉院 (the Imperial Storehouse in Nara, built in the eighth century, but containing artefacts pre-dating this era). The preserved gall bladder is thought to be from either a bear, a cow or bull.[64] Unlike the gall bladders from cows and pigs, bear gall bladder does not deteriorate from dampness at room-temperature, and it may be for this reason that it became popular in Japan.[65]

Initially, the use of bear gall appears to have been limited to the imperial household and aristocratic classes, but became more widely known and used among the commoners in the Edo Period (A.D. 1615–1868), in part due to the promotion of its medicinal benefits by physician Gotō Konzan 後藤艮山 (1657–1733).[66] With the advent of travelling medicine vendors (*seiyakugyōshōsha* 生薬行商者) in the seventeenth century, it became increasingly accessible to commoners. The most famous of the travelling medicine vendors were those based in Ecchū (present-day Toyama Prefecture), who travelled the country selling their wares in a system that required the customer to pay for medicines only after they were used.[67] Thus, by the mid Edo Period, the bear had become inextricably linked with the curative value of its body-parts.[68]

Murakami (2004) notes that whereas gall bladder had become a valuable commodity by the second half of the Edo Period, bear hides were still the more valuable of the two commodities until the mid-Edo Period. This was because hides were used by the samurai class as part of their armour and were therefore highly sought after as gifts for military families.[69] Miyao (1989) suggests that part of the reason for the demand for bear hides among the nobility as well as the warrior class was the belief that the bear was an animal which possessed a sort of divine power (*reiryoku* 霊力), though he provides no evidence of this belief.[70] In the *Engishiki* 延喜式 (a document compiled to codify penal and administrative law and ceremonies of the Engi Era, 901–923), it was mandated that Shinano Province (roughly equivalent to what is now Nagano Prefecture) was to provide bear hides to the

imperial court as a compulsory tribute.[71] In fact, hides were so highly sought after during this period that many domains prohibited them from being taken out of their territory, and there is a record of one person being punished by decapitation for attempting to export bear hides out of the Aizu domain.[72] However, as inter-domain wars became less frequent during the Edo Period (1615–1868) demand for hides gradually decreased.[73] Later, during the Sino-Japanese War of 1894–5, the Russo-Japanese war of 1905–6 and even up to the Second World War, bear hides again became a sought after item.[74]

In contemporary Japan, bear hides and meat are of declining commercial value as a consequence of diminishing demand: some hunters report that it is difficult to find buyers for bear hides—bemoaning the fact that they cannot even give them away.[75] Bear meat is not sold widely. It is not generally eaten as a commercial product, though it is sometimes served in dishes at restaurants located in towns associated with bear hunting, such as Ani. However, more generally it is shared amongst hunters and their families and friends after a successful bear hunt, or cooked up in a *nabe* (hot pot) to share. In some upland regions such as Ani Town, in Akita, a butcher selling bear-meat still operates, and bear meat is sold as a novelty product at the local souvenir shop.

This raises the question of how widespread the eating of bear meat was in the past. Following the introduction of Buddhism in the sixth century, a prohibition on the taking of life (*sesshō kindan* 殺生禁断) in 675 was decreed, specifically banning the consumption of meat from cattle, horses, dogs, monkeys and chickens.[76] However, whereas the eating of meat became a taboo on the 'surface layer' of society, meat consumption was deeply-rooted in Japanese culture and was not so readily eradicated. In the Edo Period, meat consumption became particularly popular, and shops, called *momonji-ya* もも んじ屋 selling wild venison, wild boar, and bear meat, became common.[77] Nevertheless, there was still a general sense of disapproval regarding meat consumption, and euphemisms were employed to refer to game meat to help 'disguise' its consumption: venison was referred to as *momiji* 紅葉 (maple), and wild boar meat as *botan* 牡丹 (tree peony) or *yamakujira* 山鯨 (mountain whale).[78] Indeed, a hot-pot using wild boar meat is still referred to as *botan-nabe* today.

One dimension of the human-bear relationship—a form of 'commodification' evident in other cultures—is notably absent in Japanese cultural history: unlike other cultures, the Japanese did not attempt to capture or 'tame' the bear for entertainment purposes. Though it is surmised that hunters sometimes kept orphaned cubs as pets, as they have done in recent decades, this was not for the purpose of training the bears for entertainment. The training of bears for entertainment in bear parks is only a post-war phenomenon, and even then, the bear park appears to have been an unintended consequence of upland hunting practices. Any attempt to explain the absence of this dimension in Japan's cultural history is based only on speculation, but it is reasonable to propose that a major factor

is Japan's geographical isolation from regions where these practices were more prevalent: it is suggested by the literature review that the practice of bear dancing, bear baiting and so on originated in one or two countries and spread to larger geographical regions, including England and North America. Historically, such practices do not appear to have been widespread in either China or Korea, countries which most influenced Japan historically.[79]

9.4 Summary and conclusions

As the discussion in this chapter has demonstrated, the bear features only rarely in lowland literature, arts or folklore. The images of the bear found in the poems of Heian-based poets, or the art of Edo Period artists contrast with the practical realism of the bear imagery found in the pre-historic era, or the comfortable intimacy found in the hunting folklore of the *matagi*: these lowland images are based more on associations with the unknown and uncivilised realm of wild nature, or *okuyama*, than attempts to realistically depict the bear itself. While the bear is commonly referred to as *araguma*, or 'wild bear', there is very little reference to the perception of the bear as a pest or direct threat to human safety. It is the present author's suggestion that this is not necessarily because the lowland Japanese perceived the bear as harmless, but more likely because human and wildlife spheres of habitation were generally quite separate, given that the bear's habitat—the forested mountains—remained largely intact and undisturbed by human beings until modern times. Thus, these images were not based on actual encounters with, or observation of, the bear—indeed, most lowland dwellers were probably unaware of the bear's very existence. Where there is a sense of fear expressed (such as in the *Fubokuwakashō* poem), it is a rather vague, general sense of fear, giving the impression that the fear is directed generally at the wild and unknown geographical realm of *okuyama* inhabited by the bear, rather than a fear specifically concerning the bear itself.

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[1] This is not limited to historical works: in a more recently published book entitled *Nihonjin to dōbutsu* (*The Japanese and animals*) (Saitō, 2002), bears are not mentioned, though horses, cows, wild boar, dogs, monkeys and several species of birds and fish are.

[2] The *kanbun* reading is: 荒熊之 住云山之 師歯迫山 責而雖問 汝名者不告 (poem number 2696, Book 11, University of Virginia, 1998).

[3] The author acknowledges the kind assistance of Edwina Palmer and Kenneth Henshall in the translation of this, and the following poems.

[4] Kojima, Kinoshita & Satake, 1973: 247.

[5] The caption for this poem is: くまのくらといふ山寺に賀縁法師のやとりて侍りけるに、ちゆうちし侍りける法師に歌よめといひ侍りけれは (author unknown) (Japan Cultural Research Centre, online database for *Shūiwakashū*).

[6] Henshall, K., personal communication, October 9, 2006.

[7] *Tokiwa*常葉 means evergreen, and also constancy. *Iro* 色can refer to sexual attraction, love or passion. Like many poems, the poem's author has employed the device of double-entendre to express multiple layers of meaning.

[8] Henshall, K. (personal communication, October 9, 2006) suggests that this poem involves an intricate pun, playing on *tsukinowa* meaning both a bear's white pelage and the moon's halo, and similarly playing on *yome*, being both a word for 'night eyes' and the imperative of the verb *yomu*, meaning to compose a poem. This poem demonstrates a

common technique employed by poets of early poetry: a poem begins by focusing on one theme, and then switches to another through some pivotal word, i.e., in this case switching from a poem about bears to a poem about the moon, through the word *tsukinowa*.

[9] According to the *Kadokawa Kogo Daijiten*, *arakuma* means '*araarashii kuma*. *Yasei no kuma*' (both meaning 'wild bear') (Nakamura et al (eds), 1994: 158).

[10] Author's translation.

[11] Palmer, E., personal communication, October 28, 2006.

[12] Tōdō et al., 1997: 321. In Japanese, 川のおく深く入り込んだ所.

[13] Tōdō et al., 1997: 1435. In Japanese, 山や水辺が入り込んで奥まった所. The possibility that there is a connection becomes all the more intriguing by virtue of the fact that bears tend to descend from the mountains into the lower-lying areas using streams (沢 *sawa*) as a 'path-way' (and for this reason, farmers or horticulturalists who have a stream from the hills or mountains running through their property tend to be more vulnerable to bear pestilence, as will be seen in Chapter Ten).

[14] Philippi (trans.), 1968: 167.

[15] The use of the word 'eastern' here is a little idiosyncratic. Kumano is located on the tip of the Kii Peninsula, usually regarded as western Japan. However, in the context of the myth, Jinmu was proceeding from Kyūshū in the south, so in that sense, Kumano was in the east (Palmer, personal communication, February 12, 2007).

[16] Sekiguchi, 2006: 128. He further notes that some scholars propose a connection between this myth and the Dan-gun origin myth of Korea, to which the bear is central, and the flood myth of early China, in which a yellow bear appears, suggesting a common magico-religious belief in the bear's powers (Ōbayashi (1984) and Mishina (1971), as cited in Sekiguchi, 2006: 128).

[17] This leads to the question of the etymology of Kumano, and whether there is any connection between the name and the bear appearance in the *Kojiki*, or bears generally. There are various theories concerning the etymology of the name Kumano. Fujioka (1991) proposes two theories: one is that it has its origins in the bear incident in *Kojiki* as outlined in the text, the second is that it was the 'namesake' of the place of the same name in Izumo no kuni 出雲国. Izumo was at that time a political and cultural centre that rivalled the Yamato court of the Nara region, and has many myths and legends associated with it. It is therefore plausible that it would have been deemed desirable to emulate its place names. Other popular theories abound, including that in ancient Japanese, *kuma* was metonymous with *kami*, or god, and that Kumano therefore indicated a place in which gods resided. Another theory is that *kuma* indicates the homonym *kuma* 隈 meaning shady and dark, referring to the thick forest that grew in the mountains there (Fujioka, 1991: 195). For a discussion of the substitution of the word 熊 for 隈 in place names in particular, see Ide, 1979.

[18] Philippi (trans.), 1968: 233. There is significant variation in the way the name Kumaso was rendered in the various histories: in *Kojiki*, it is rendered 熊曽, in *Nihonshoki* as 熊襲, and in *Fudoki* 風土記, (a collection of cultural and geographical information relating to the Japanese provinces compiled in the eighth century), and other documents as 球磨曽於 (Kumasō). However in all cases it refers to a region in southern Kyūshū and its inhabitants.

[19] See Nakamura, 1985: vol. 7, 529. However, it is also possible that the name Kumaso was originally derived from two separate place-names in Kyūshū: Kuma 球磨 (in Higo 肥後, the old province name of what is now Kumamoto Prefecture) and Sō 曽於 (Ōsumi 大隈), and bore no relation to the bear at all (though there are some doubts about this theory also) (see Nakamura, 1985: vol. 7, 529).

[20] Sekiguchi, 2006: 128. The six histories are *Nihon shoki* (A.D. 720), *Zoku nihongi* (797), *Nihon kōki* (840), *Zoku nihon kōki* (869), *Buntoku jitsuroku* (879), *Sandai jitsuroku* (901).

[21] See Aston, 1972: book II, 257, 263, 371.

[22] At least 48 provinces contributed to the *Fudoki* but only that of Izumo remains complete.

[23] Sekiguchi, 2006: 129.

[24] The work lists the names of many objects and classifies them according to traditional Chinese categories. Definitions in Chinese provide meanings, pronunciations, and literary sources, and also records the Japanese pronunciation (*wamyō*) of the term in *manyōgana* (Chinese characters used phonetically) (Kōdansha, 1993: vol. 2, 1684).

[25] Miyao, 1989: 60.

[26] Hazumi & Yoshii, 1994b: 28. This work was authored by pharmacognosist (person who studies medicinal herbs and animal products) Hitomi Hitsudai 人見必大.

[27] Literally, 'Japanese-Chinese illustrated assemblage of the three components of the universe'. The encyclopaedia included chapters covering astronomy, geography, plants, animals, clothing, implements, and other topics (Kodansha, 1993: vol. 2, 1682).

[28] Miyao, 1989: 65. In contrast to the content of this entry, in Kumamoto in Kyūshū, it was believed that a hunter must not aim for this marking, as it would bring hardship to one's family, usually in the form of the birth of a child with the deformity or disability (Hayakawa (1943), as cited in Miyao, 1989: 67).

[29] Miyao, 1989: 65.

[30] This encyclopaedia lists information concerning Japan under 30 categories based on traditional Chinese encyclopaedic conventions (Kodansha, 1993: vol. 1, 812).
[31] As cited in Miyao, 1989: 60. In contrast to this interpretation of 'kuma' as a prefix for other animal names, Azumane (1994: 223) suggests that 'kuma' is attached to animals and birds which, like the bear, are large in size and relatively elusive, living in more remote mountainous areas.
[32] Toyamaken Tateyama Hakubutsukan, 1994: 34, figure IV–14. This work was authored by a doctor named Tachibana Nankei 橘南谿 (1754–1806).
[33] Yamazaki, 1990: 9.
[34] Yamazaki (1990: 8) also makes this point.
[35] Inada, 1977: 288. One notable feature of some versions of this tale is that the bear crushes insects and eats them by licking the palms of its paws. This aspect reflects the folk belief that the bear endured its long winter hibernation by licking its paws for nutrition. (See also Hayashi (1993: 55) for a discussion of this.) This piece of folklore is a variation of folklore found in traditional bear-hunting cultures throughout the northern hemisphere: that is, that the bear survives the winter by sucking on its paws. The belief has been reported in a number of North American Indian tribes and in Asia (including the Ainu) and the Lapps in Northern Europe. Hallowell suggests that there is a rough correlation between the distribution of this folklore belief and the occurrence of bear ceremonialism—i.e., it is only recorded in the regions where bear ceremonialism is practised (Hallowell, 1926: 27–30).
[36] Inada, 1977: 206–207; *Nihon no minwa no kai*, 1991: 80–81.
[37] A feature of this tale is that the fox sees the bear eating a horse and asks him how he managed to catch one (Inada, 1977: 251). This is noteworthy owing to the fact that the bear is not known to be a predator of large animals such as a horses or deer. Whether this indicates ignorance of the bear's diet and behaviour, or whether it is the result of the influence of knowledge of the brown bear is not clear. It may also be a case of the horse or the bear being substituted for another (carnivorous) animal in earlier versions of the similar stories.
[38] Kodansha, 1993: vol. 1, 788. This is one of many versions of the tale.
[39] Minamoto no Yoshitsune（源 義経） (1159–1180) was a general of the Minamoto clan active in the late Heian and early Kamakura periods.
[40] Robinson, 1982: 19.
[41] Tōdō, 1997: 844.
[42] This inventory does not include names which contain the character for bear, but do not begin with it.
[43] For example, Knight (1997: 135) notes a number of place names on the Kii Peninsula containing the *kanji* for wolf. See also Taguchi, 1993 (103) for a analysis of bear-related place names in Gifu Prefecture.
[44] Knight, 2003: 165.
[45] Tōdō, 1997: 844.
[46] Smyers, 1999; Johnson, 1974: 40–51.
[47] Johnson, 1974: 65, 55–6. The treatment for fox-possession is extremely harsh and sometimes led to death of the 'patient'.
[48] The past tense is employed here, as the two species of wolf which once inhabited Japan are both extinct. The Honshū wolf (*Canis lupus hodophylax*) is thought to have become extinct in 1905 after the remaining population was infected by rabies and other contagious diseases. The Ezo wolf (*Canis lupus hattai*) which inhabited Hokkaidō was extirpated by strychnine poisoning after it came to be seen as a threat to the American-style livestock farming which was introduced in Hokkaidō in the Meiji Period (1868–1912) (Knight, 1997: 130; Walker, 2005b: 129–157).
[49] Knight, 1997: 137–143. See also Walker, 2005b: 69–78.
[50] Though relatively rare, there are some instances of Chinese art (mainly sculptured items from earlier periods) featuring bears. For instance, an early Han (206 BC–220 AD) stone sculpture of a bear, probably female—judging from its human-like breasts—sitting in an upright position with outstretched arms (Hajek & Forman, 1966); a twelfth century Cizhou stoneware pillow featuring a slip-cut tethered bear (possibly a performing bear) (Watson, 2000: 37). There are few instances of bears in Chinese paintings.
[51] Harada, 1976: 1. Parenthetically, the *tanuki* is a member of the *Canidae* family and is considered to be a species of dog. It is not entirely inappropriate therefore that the Japanese used the Chinese character 狸—one of the characters used in Chinese to make up the word for fox (狐狸*huli*)—to represent its name. Given this close association in name, it may be that the distinction between fox and *tanuki* became somewhat blurred, and the shape-shifting and trickster behaviour associated with the fox in Chinese folklore also came to be connected with the *tanuki*.
[52] Taguchi, 2004: 191–201.
[53] Body parts from other animals such as the monkey, deer, turtle and snake were also traditionally used as medicine in Japan.
[54] Although some bear parts are still used for medicinal purposes today, use is less common than in the past. For the sake of consistency, the past tense has been used.
[55] Knight, 2003: 179–80; Ishida, 1993: 88–89. The association of the bear with health-giving potential, particularly natural healing, is also found in indigenous American and European societies. On both continents, this appears to be connected with the fact that bears ate the plants that people used as medicines (Rockwell, 1991: 76, 189). Bear gall

was also used by at least some indigenous American tribes. The Ojibwe are reported to have used bear gall dried, mixed with cedar charcoal, and 'pricked into the skin' as a remedy for rheumatism and other ailments (Densmore (1929), as cited in Berres et al, 2004: 9).

[56] Yamazaki, 1990: 8; Tanaka, 1993: 95; Azumane, 1993: 13.

[57] Tanaka, 1993: 96; Tōno Municipal Museum, 1998: 40.

[58] Ishida, 1993: 88–89

[59] Hazumi & Yoshii, 1994b: 31, 43; Kaneko, Konishi, Sasaki & Chiba, 1992: 40.

[60] Hazumi and Yoshii, 1994b: 31. Bear products such as meat and oil (derived from fat) are still sold in tourist-oriented shops such as a souvenir shop in Ani Town, and the Okuhida Bear Park souvenir shop. However, sales of bear parts are generally made through informal networks rather than through retail outlets.

[61] Miyao, 1989: 182. According to Miyao, this work documents the benefits of gall from cows, dogs and carp. It was not until the Tang Dynasty (A.D. 618–907) that bear gall came into wide use in China.

[62] This was published as part of the *Engishiki*.

[63] These were Mino (now the southern part of Gifu Prefecture), Shinano (present-day Nagano Prefecture) and Ecchū province (now Toyama Prefecture) (Hazumi & Yoshii, 1994b: 31; Miyao, 1989: 179; see also Eisai, 2004).

[64] Imperial Household Agency, 2004.

[65] Miyao, 1989: 182.

[66] Miyao, 1989: 182.

[67] Toyama was particularly known as a base for such travelling vendors. In the Edo Period, the town attracted large numbers of travelling salesmen and traders, and flourished as an important post along the Hokuriku route, and also by virtue of its position as the starting point of the Hida Kaidō route. As a way of promoting the local economy, the Toyama *han* (feudal domain government) provided both incentives and protection for travelling Ecchū medicine vendors (Toyama prefecture, 2004).

[68] Uji (1991), as cited in Hazumi & Yoshii, 1994b: 31; Maita, 1998: 45.

[69] A saddle-cloth made of bear hide is one of the items in the *Shōsōin* storehouse (Nara National Museum, 2006: 47).

[70] Miyao, 1989: 178.

[71] Miyao, 1989: 178.

[72] Murakami, 2004b: 257.

[73] Murakami, 2004b: 257.

[74] Maita, 1998: 47.

[75] Azumane, 1993: 80–2.

[76] Miyao, 1989: 186.

[77] Miyao, 1989: 187. *Momonji* is a term used to refer to the meat of wild boar, deer, raccoon dog and other wild animals. The etymology of the word is not established, but one theory is that it derives from *momojū* 百獣, which was a term used to mean 'hairy monster' (Yoshii, 1985: vol. 23, 26).

[78] Miyao, 1989: 187; Hanley, 1997: 66. Further evidence of the growing popularity of meat-eating is found in the *Meisan shojiki ōrai*, a document published in A.D. 1760, which listed the kinds of meat sold in the Kōjimachi area in Edo. The list included boar, venison, fox, wolf, bear, badger, beaver, cat and wild dog (Hanley, 1997: 66). See also Walker (2005a: 182) for a discussion of this topic. Parenthetically, horse meat served raw is referred to as *sakura*, or cherry blossom.

[79] Nevertheless, as noted in earlier, a twelfth century stoneware pillow features what may have possibly been a performing bear.

Chapter Ten: The bear, the 'bear problem', and bear management in Iwate

10.1 Introduction

This chapter will examine the history of human and bear interactions in Iwate Prefecture through archaeological artefacts, hunting folklore and literature specific to the Iwate region. It will go on to examine the nature of human-bear conflict in Iwate, described in one recent Iwate prefectural government document as a 'major social problem'.[1] By examining media coverage, public documents and public discourse, it will look in detail at the way in which Iwate's government, citizens and other organisations perceive this issue, and the way in which they have sought to resolve it.

Before turning to the discussion of the bear and its management in Iwate, it is important to understand the wider geographical, economic and social context of human-bear interaction in Iwate. The following section will examine these aspects.

10.2 Background to the case study: Iwate Prefecture

10.2.1 Geography and climate

Two mountain ranges run north-south through Iwate Prefecture, bisected by the Kitakami River valley. In the east are the Kitakami Highlands, which run parallel to the Pacific Coast for 250 km, mainly in Iwate Prefecture, but also into neighbouring Aomori Prefecture to the north and Miyagi Prefecture to the south. These largely granitic uplands are characterised by undulating hills with gentle slopes and shallow valleys that are deeply incised by fast-flowing streams. The highest peak in the Kitakami Highlands is Hayachine, which is 1,914 metres above sea level, while most of the peaks of the Kitakami Highlands are between 1,000 and 1,300 metres in height. In the west are the Ōu mountain ranges, which form the border with Akita Prefecture. These ranges are separated from the Kitakami Highlands by the Kitakami River basin. They also form the watershed between the Pacific Coast and the Japan Sea Coast. They run north-south over a distance of about 500 kilometres, from Aomori Prefecture to the north, through Iwate, and into Fukushima and Tochigi Prefectures to the south, making them Japan's longest mountain range. They generally rise to around 1,000 metres above sea level, apart from in the Nasu volcanic area, where they reach heights of over 2,000 metres. As a result of their complex geomorphology, these ranges have proven valuable resources for the mining of various ores and for tourist development.[2]

The climate of Iwate Prefecture, like much of mainland Japan, is principally affected by the seasonal change in the monsoon winds, combined with the influence of the main dividing ranges. Prevailing strong northerly and westerly winds blowing from the Arctic and Siberia in the winter bring average temperatures of –4ºC to –6ºC in the mountain ranges in February, and –3ºC in the Kitakami Valley.

In the summer, easterlies prevail from the Pacific. Temperatures for August average around 24ºC throughout the prefecture, lowering only a degree or two with increasing altitude. In June the frontal system associated with the *tsuyu* monsoon rains brings an average of 100 mm of rainfall to the coast, and an average of 170 mm in the ranges.[3]

The natural vegetation of the Ōu Ranges is Japanese beech forest (*Fagus crenata*) near the watershed, merging to forest of mixed beech, Japanese cedar (*Cryptomeria japonica*) and Japanese cypress (*Thujopsis dolabrata*) on the lower slopes and eastwards through the Kitakami Highlands. Primeval forest survives now only in small pockets, having been largely replaced by secondary growth and plantation coniferous forest.[4] A rich diversity of fauna inhabit the forested regions of the Ōu Ranges and Kitakami Highlands, including deer, serow, monkeys and bears. In recent decades, clear-cutting and increased development, such as the building of roads, dams and ski fields, has destroyed or fragmented significant areas of indigenous mountain forest. This destruction of wildlife habitat appears to be at the root of the movement of animals into the human inhabited foothills and basins where previously they would have only rarely been seen. In such instances, wildlife generally comes in search of food as their area of feeding activity expands beyond forest margins to compensate for the decreasing area and deteriorating quality of the forest environment.

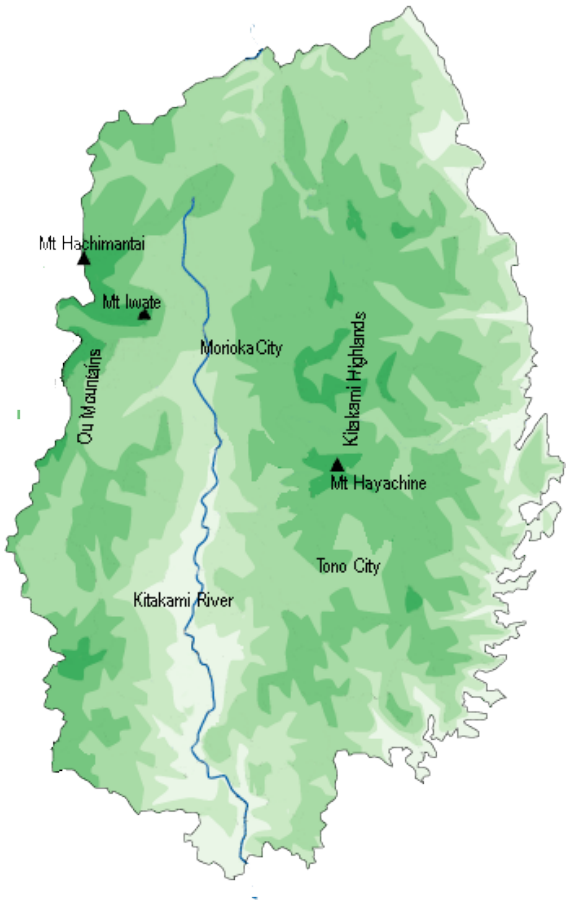


Figure 28: Map of Iwate showing key locations cited in the text

10.2.2 History of Iwate

Based on archaeological information, it is thought that Yayoi culture reached the Tōhoku region approximately 2,300 years ago, and wet rice agriculture came to be practised in at least some parts of the region. A paddy site approximately 2,000 years old has been found on the Isawa Plains, in southern Iwate.[5] However, despite the introduction of Yayoi rice-cultivation centuries before, the inhabitants of this region continued to rely heavily on hunting and fishing.[6]

Until the eighth century, the Tōhoku area, including Iwate, lay beyond the frontier of the Yamato state (see glossary), and was inhabited by a people known to the Yamato Japanese as the Emishi. There is no consensus among scholars as to the ethnic origins of the Emishi, but there are three major theories: one is that the Emishi were early Ainu who inhabited northeast Honshū (see also Chapter 8). The other theory is that both the Ainu and the Emishi were people descended from the Jōmon people, but who subsequently became ethnically distinct from one another.[7] Yet other scholars suggest that the Emishi appellation was political, not anthropological, simply referring to groups of people outside the control of the Imperial Court.[8] There are a number of references to the Emishi in *Nihonshoki* (completed A.D. 720), in which the yet unconquered area of Tōhoku is referred to as the 'Eastern wilds'.

> The people of this country [the Eastern wilds], both men and women, tie up their hair in the form of a mallet, and tattoo their bodies. They are of fierce temper, and their general name is Yemishi. Moreover, their land is wide and fertile. We should attack them and take it.[9]
>
> …their men and women live together promiscuously, there is no distinction of father and child. In winter they dwell in holes, in summer they live in nests. Their clothing consists of furs, and they drink blood… In ascending mountains they are like flying birds; in going through the grass they are like fleet quadrupeds… [10]

Evidence used to support the theory that the Emishi were the ancestors of the modern Ainu includes the large number of place names in Tōhoku that appear to be of Ainu derivation;[11] the fact that the same Chinese characters used to write 'Emishi' (蝦夷) in the sixth to twelfth century sources were used to refer to the Ainu of Hokkaidō during the Edo period also (using a different reading of 'Ezo'); and archaeological finds indicating geographical continuity of artefacts such as pottery forms between Hokkaidō and Tōhoku.[12]

In any case, there seems to be no argument about the fact that the Emishi culture differed significantly from the Yamato culture at that time. Emishi society was organised into tribes or clans, each based in a territory which centred around a village.[13] The Emishi people also appear to have spoken a distinct language, as evidenced by at least one reference in the *Shoku Nihongi* (completed A.D. 797) to

interpreters being attached to the eighth century subjugation armies.[14] Possible hints of Iwate's Emishi history are also found in more recent literature. In the *Tales of Tono* (1910), folktales and folklore which were gathered in and around the town of Tōno in central Iwate, there are references to people who, it is suggested by some, may be descendents of these Emishi people. For instance, Kuji (2002) suggests that the *yamaotoko* 山男 and the *yamabito* 山人 who appear in these stories may be people of Emishi ancestry. Kuji also suggests that the imaginary *kappa* 河童 (water demon) and the *zashikiwarashi* 座敷童 (a red-faced child spirit with bobbed hair, believed by Tōhoku people to be a guardian deity of the house) which feature in these tales are actually creative representations of the children of the 'mountain people', who are themselves the descendants of Emishi.[15]

It was only in the Nara Period (A.D. 710–794) that the inhabitants of the Iwate region finally succumbed to the imperial court's forces and became part of the Yamato state. This came after a series of attacks from the imperial forces, resisted by counter-attacks, apparently led by an Emishi warrior named Aterui. Direct imperial rule continued until the eleventh and twelfth centuries, when the power of the imperial court weakened considerably, and the region came under the rule of the Ōshu Fujiwara family, who are suggested by some to have been of Emishi decent.[16] During this period, the Fujiwara capital at Hiraizumi became northern Japan's major cultural centre. At the end of the twelfth century Iwate came under the control of the Kamakura shogunate. The Nambu family and the Date family ruled the area in the sixteenth century, and in the Edo period (1600–1868) the province, which was called Mutsu, was divided into several domains.[17]

The present prefectural name and boundaries were established in 1876.[18] In the post-war years, Iwate's economy was left in ruins as a result of deforestation and a series of natural disasters. During the 1950s and 1960s, the Prefecture actively promoted the development of industry and enterprise. In the 1970s, transportation networks such as the Tōhoku Longitudinal Expressway and the Hanamaki Airport were built. In the 1980s, the *shinkansen* (bullet-train) line was extended to Morioka, and the Hanamaki Airport was expanded to accommodate jet aircraft, thereby increasing the accessibility of the Iwate area to tourism, trade and development.[19]

10.2.3 Demography and economy

Iwate Prefecture is the second largest administrative region in the country after Hokkaidō. The prefectural capital and largest city of Iwate is Morioka, which is located in the Kitakami Basin in northern Iwate. Iwate is also one of Honshū's most sparsely populated prefectures, with a total population of approximately 1,395,000 in an area of 15, 279 km^2. Its population density of 93 persons per km^2 contrasts starkly with the 5,517 per km^2 figure for the Tokyo metropolitan area and is low even in comparison to other Tōhoku prefectures.[20] Sixty nine per cent of Iwate Prefecture is

designated as rural.[21] As can be seen from Table 5 below, Iwate's population has remained steady over the past 40 years. However, consistent with the nation-wide trend, the number of households has been steadily increasing as extended family households break down into nuclear, or even smaller, family units. Like many rural prefectures, Iwate has an aging demography—in fact, it has one of the highest percentages of elderly people in Japan: 24 per cent of its population is 65 years old or over, compared to the national average of 19.8 per cent.[22]

Table 5: Population of Iwate Prefecture

	1965	1975	1985	1990	1995	2000	2002
Population	1,411,000	1,385,000	1,433,000	1,416,000	1,419,000	1,416,000	1,408,000
Number of households	296,000	352,000	411,000	426,000	452,000	474,000	—

Source: Iwate Prefecture.

Despite its larger area, Iwate Prefecture's economy generates less income than most others in Japan: its average income per capita for the financial year of 2002 made it one of the ten lowest-earning prefectures in Japan. Its earnings for that year were ¥ 2,426,000 (compared to, for example, Tokyo's ¥ 4,080,000 or Osaka's ¥ 3,030,000).[24] The primary sectors of agriculture, forestry, livestock farming and fishing have historically been important in Iwate, and in terms of land use, still represent a significant part of the economy. The proportion of Iwate's land area utilised for agriculture is 11.5 per cent and the major farm products for Iwate in 2003, in order of value of production, were rice, poultry, milk, pork, beef, eggs and apples (see Table 6).

Table 6: Top ten earning farm products (2003) [23]

Product	Production value (¥ million)	% of total agricultural production value
rice	68,700	26.6
poultry	45,900	17.8
milk	22,200	8.6
pork	19,900	7.7
beef	19,200	7.4
eggs	11,100	4.3
apples	10,500	4.1
tobacco	8,600	3.3
broilers (chickens)	6,200	2.4
cucumbers	3,900	1.5

However, the primary sector is in decline, and in terms of value of production, the contribution of this sector to the prefectural economy is now being overtaken by secondary industries. The number of households engaged in farming has been steadily decreasing since peaking in the 1960s when 129,000 households were engaged in farming. In 2005, this figure stood at 87,000 and is likely to continue to decrease, owing to a decrease in adult children willing to take over family farms.

As in the case of agriculture, forestry production has been in steady decline since its peak in the 1970s, but still remains an important economic sector: today, 75 per cent of Iwate's land area is utilised for forestry.[25] In 2000, prefectural earnings from forestry were fourth highest in the country.[26] However,

the decline of forestry since its heyday in the 1970s is marked: in 1970, lumber production for Iwate totalled 2.2 million m^3. By 2003 this figure had halved to 974,000 m^3. The cost of harvesting and processing timber is clearly a factor contributing to the decline of timber production in Iwate, as it is nationally. There has been an increasing reliance on imported timber, which can be sourced more cheaply: since the 1970s more than a third of all timber consumed within the prefecture has comprised imported timber. Overall, total timber consumption in the prefecture has been decreasing—again, consistent with national trends.[27]

In comparison to some other regions, Iwate, as is the case of the Tōhoku region generally, is not extensively industrialised. Nevertheless, manufacturing of electrical appliances and industrial machinery has grown to become one of the biggest income earners for the prefecture. The construction and food-processing industries are also substantial earners.[28] Like many other regions, Iwate's prefectural government has been actively encouraging tourism through the consolidation of transport links such as express-way routes in the region, the extension of the *shinkansen* route in 1982, and the establishment of various tourist facilities, particularly ski fields.[29] The skiing and golfing booms, after reaching their peaks in the late 1980s and early 1990s, have now passed, and many of these facilities are facing economic ruin.

10.2.4 Summary

Iwate is a predominantly rural prefecture, characterised by two mountain ranges, and forests covering three-quarters of its total area. Forestry and agriculture have historically been important activities for Iwate, but as is the case nationally, the primary sector industries are being overtaken, in terms of their economic contribution, by the manufacturing industries. Like other largely rural prefectures, the prefecture has attempted to boost its regional economy through the development of tourism. This has been facilitated through the development of transport infrastructure, resorts, ski fields and other leisure facilities.

10.3 History of human-bear interaction in Iwate

10.3.1 Bears and humans in pre-history

Human-bear interaction can be traced back many hundreds of years in the Iwate region—indeed, into pre-history. Judging from archaeological artefacts found in Iwate, our only window into the lives of the people of prehistoric Japan, there was a multi-faceted relationship between humans and bears during the Jōmon (10,500–400 B.C.) and Yayoi Periods (400 B.C–A.D. 250), encompassing not only practical aspects such as its being the source of meat and hides, but also a magico-religious aspect. As discussed in Chapter Eight, Jōmon and Yayoi period artefacts relating to the bear, such as earthenware pots decorated with bear figures or designs, clay figures of bears and bear-tooth pendants, have been found throughout northern Tōhoku. In Iwate, bear related artefacts include teeth, bones, clay figurines and fragments of pots with bear motifs.

Turning firstly to the clay figurines, or *dogū* 土偶, a total of 199 clay figures of animals and plants have been found at 73 archaeological sites in Iwate. For the most part, these date from the Mid to Late Jōmon period, and are distributed mainly in the Kitakami River basin. The animal figurines include those resembling wild boar, bears, screech owls, sea otters, and beetles. Figurines of wild boar are the most numerous, and to date, more than ten have been found in Iwate.[30] Figurines of bears are less numerous, and to date, four have been found, each at different sites. Two of these are hollow, free-standing effigies, while the others are smaller, solid effigies of bears in prone positions.

Figure 29: Bear artefact found at Uesugizawa-chō site in Northern Iwate (Source: Tateyama Museum)

The two hollow figurines and are remarkably similar in their shape, structure and decoration, despite having been excavated from sites nearly 100 kilometres apart: one figurine was excavated from a site in Ishidoriya in the Kitakami River Basin, while the other was found near Jōhoōji-chō in the Ōu Mountains in Northern Iwate. They are free-standing on four legs, both with indented lines representing a crescent-shaped mark on their chests, one about nine centimetres in length and the other about sixteen centimetres in length. In both cases, their ‘coats’ are decorated with patterns and texture using curved indented lines and dotted indentations. Both figurines are dated to the early Yayoi Period. The key difference between the two is that one figurine has a wide open mouth, while the other’s nose conceals its mouth when in a free-

standing position (see Figure 29). The open-mouthed figurine is also able to 'sit' on its rump, with the aperture for its mouth pointing upward. This suggests that the figurine may have been used as a receptacle for liquid (possibly blood or some sort of alcohol) in a form of ritual, perhaps for supplication to the gods for a good hunt.

The third figurine of approximately five centimetres in length was excavated from a site near Takizawa-mura, located in the Kitakami river basin. It is not free-standing, and is solid.[31] A fourth figurine, also solid clay, was excavated from a site near Kitakami City, again in the Kitakami river basin. Scholars have suggested that it represents a dead bear. It is in a prone position with no details on its face or body, except for a curved line under its 'chin', representing the crescent-moon shape.[32] It is not clear what the purpose of these solid effigies may have been, except that they are likely to have been used in some kind of magico-religious ritual.

Bear teeth, both molars and canines, dating from the Early to Middle Jōmon period have been found at two sites in the southeast of Iwate. Of these, two canines had holes drilled through them indicating that they were used as pendants.[33] Burnt bear bones have also been found at the Uesugizawa-chō site (dated to Latest Jōmon/early Yayoi periods). Scholars propose that these bones, in combination with the clay figure found at the site (Figure 29), suggest a bear 'sending ceremony' of a similar nature to that found in Ainu culture, and surmise that cultural influence from Hokkaidō is evident in these artefacts.[34] A fragment of a pot with handles sculpted in the shape of a bear was found at a mid-Yayoi site near Ichinohe-chō in the Ōu Mountains, about 20 kilometres east of the Uesugizawa-cho site (see Figure 30).[35] Though very simple, the bear's head, which protrudes out above the lip of the pot, is unmistakably bear-like: in fact, with its rounded ears and small round eyes sitting above a button-like nose, it is strongly reminiscent of a modern day teddy-bear.

Figure 30: Pot fragment found in Ichinohe-chō (Source: Tateyama Museum)

Although it is impossible to ascertain with any certainty the mindset and attitude of the craftspeople who sculpted these figurines or carved these motifs, none of the artefacts described above gives any sense that the bear was a feared or despised creature. Even in the case of the open-mouthed figurine, the mouth appears as to have been fashioned in that way in order to provide an aperture, rather than to

make the bear appear frightening and aggressive, as in the case of modern taxidermy in which bears are commonly set with open mouths and raised paws as if to attack.

Though it no doubt continued in some form, evidence of human-bear interaction disappears from the archaeological/historical record in Iwate for hundreds of years before again emerging in the form of *matagi* hunting culture from around the beginning of the Edo period (A.D. 1615–1868).

10.3.2 Bears in hunting culture

In Iwate, *matagi* villages were located in both the Ōu Mountains in the west and Kitakami Highlands in the east. Villages known to have been traditional hunting villages include what is now Shizukuishi-machi, Sawauchi-mura, and Yuda-machi in the Ōu Mountains, and Kitakami-shi, Ōhasama-machi, Tōno-shi and Ōtsuchi-machi in the Kitakami Highlands (see Figure 31).[36]

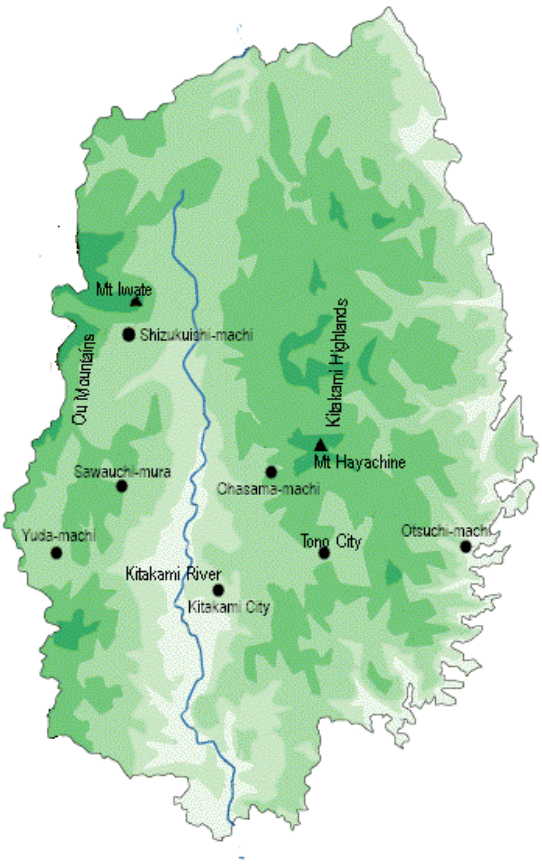


Figure 31: Places known to have been *matagi* villages in Iwate

To some extent, the Ōu and Kitakami ranges represent two distinct hunting cultures, including the very name used to describe the hunters. In the Ōu mountain villages, hunters were more generally called *matagi*, though the term *yamadachi* was not uncommon. However, in the Kitakami Highlands, hunters generally referred to themselves as *teppōuchi* 鉄砲打ち (literally, gun-shooter), and less commonly, *yamadachi*—the term *matagi* was rarely used. This would appear to indicate that these hunters have always used guns, but in fact there was a hunting tradition in this area long before the adoption of guns, probably around the mid-Edo period.[37] Before this time, hunters in this region, like the *matagi* hunters of Tōhoku generally, used spears, knives and traps to hunt bears.

Additionally, the differing terrains of the two areas influenced the way in which hunting, particularly bear-hunting, was undertaken. In the Ōu Mountains, which consists of very steep and severe terrain, hunting was carried out in larger groups. However, in areas where the mountains are lower and more gently sloping, such as the Tōno area in the Kitakami Highlands, hunting tended to be carried out by a lone hunter or in small groups.[38] In Ōtsuchi-machi, due east of Tōno and not far from the east coast of

Iwate, three groups of hunters still hunt bears using the traditional *maki-gari* method (see Chapter Eight). The enduring nature of the spiritual relationship with the bear in this traditionally hunting-centred village is evident in the recent erection of a stone monument dedicated to the 'soul of the bear'. This monument was erected in a valley near the town in 1995 to console the spirits of bears killed through hunting (see Figure 20).[39]

Figure 32: Hayachine Shrine, near Tōno. (Source: Kamnavi (website))

The hunting of bears, deer, serow and smaller creatures such as weasels, squirrels and rabbits, has long been common in the Tōno area, surrounded as it is by the Kitakami Highlands. Nearby is Hayachine Mountain, the highest peak in the Iwate section of the Kitakami Highlands, and a mountain which has long been of great spiritual significance to the people of the Tōno area. As outlined in Chapter Eight, according to its 'founding legend', the shrine on this mountain, Hayachine Shrine (Figure 32), was established by hunters, and holds one of the few pieces of religious art featuring the bear, an *ō-ema* depicting three bears (see Figure 21). Bear-hunting is still practised, usually by groups of two or three hunters, and usually using the *ana-gari*, or 'den-hunting' method. As noted, unlike in the rugged mountainous terrain of the Ōu Mountains, hunting in small groups is better suited to the gentler topography of the Kitakami Highlands. Bear meat from the hunt is usually prepared as *kuma-nabe*, or 'bear hot-pot', seasoned with *miso* (bean paste). However, hunters with the skills essential to hunting are diminishing in the area: for instance, few people can now skin a bear in the traditional manner (referred to in Japanese as *kumahagi* 熊剥ぎ).[40]

One hunter in the area, Kikuchi Takeshi, goes bear-hunting about five to six times over the hunting season, and normally is successful on about one or two of these occasions. The hunting excursion usually involves an early start (about four o'clock in the morning) and lasts about six hours. *Ana-gari* is the predominant hunting method used, usually in January and February. Mr Kikuchi notes that there are now few denning holes in trees in the forest, as most large trees have been cut down for timber. Therefore, the dens in which he finds bears are for the most part cavities in the ground or in cliff faces (*tsuchi-ana* 土穴), or rock cavities (*iwa-ana* 岩穴). According to Mr Kikuchi, bears tend to return to the same holes year after year, so it is the same series of holes he checks on his hunting expeditions. He also describes a method of hunting called *anagae* 穴変え, or 'hole-changing'. This is where a bear,

often accompanied by cub(s), moves to another denning site when the original one becomes wet and uninhabitable. This usually occurs around January, when the weather becomes warmer, causing the snow to melt and run into the hole. If the hunter knows where the denning sites are, and is skilful in his timing, he can successfully hunt a bear in the process of changing holes.[41]

10.3.3 The bears of Nametoko: *sesshō*, fate, and the bear as moral exemplar

As discussed in Chapter Eight, one of the few major works of Japanese fiction in which the bear is one of the central 'characters', is set in Iwate: *The Bears of Nametoko*, written by Miyazawa Kenji. Its author, a poet and author of children's literature, was born in Hanamaki, in the Kitakami basin, where he lived most of his short life. He graduated from agricultural college with a degree in agronomy, and became a teacher in this field. He devoted much of his life to assisting poor farmers in Iwate to improve their farming, particularly through better soil management techniques. Miyazawa loved the nature of Iwate, and enjoyed spending time in the mountains and forests around Hanamaki.[42] He was strongly influenced by Buddhism, and many of his stories carry underlying ethical and ecological messages which demonstrate his acute interest in the relations of humans, both with each other, and other forms of life. *The Bears of Nametoko* is the tale of a poor man, named Kojūrō, who supports his family by hunting bears. As the character himself explains, he does this not out of choice, but out of necessity, as he is only able to grow millet on his small and infertile plot of land, insufficient to support himself and his family. He uses the small amount he earns from the sale of bear skins and livers to buy rice and *miso* from the local village.[43]

Worth noting is the unusual depth of understanding that Miyazawa demonstrates of the biology and ecology of the bear, of aspects such as its diet and life-cycle, through this story. He does this while at the same time portraying the bears with a great deal of anthropomorphism, without detracting from their realism. For example, they are not only able to speak to each other, but also to Kojūrō, and their gestures and movements are also human-like. In one scene, Kojūrō happens to eavesdrop on the following exchange between a mother and her cub, whom he finds 'staring intently at the other side of the valley with their paws up to their foreheads, just as a human does when he is looking into the distance'.

> …Then the small bear said in a wheedling voice, "I am sure it's snow, Mother. Only the near side of the valley is white, isn't it? Yes, I'm sure it's snow, Mother!"
> The mother bear went on staring intently for a while, then said finally, "It's not snow. It wouldn't fall just in one place."…
> …"I know what it is," said the mother bear. "It's cherry blossoms."
> "Is that all? I know all about that."
> "No, you have never seen it."
> "But I *do* know it. I went and brought some home myself the other day."
> "No—that wasn't cherry. It was beech you brought home, I think."
> "Really?" the cub said innocently.[44]

While this might seem like a banal exchange between the bear and her cub, it demonstrates Miyazawa's understanding of the vital 'pedagogical' role the sow plays in the two years before the cub becomes independent. During this period the sow must 'teach' the cub how to find food, what it can and can't eat, and to detect signs of change in the forest environment and to respond accordingly: the 'conversation' therefore represents a vital aspect of the sow-cub relationship.

The overriding theme of the tale is one of fate: Kojūrō's fate is to be, in this life at least, a hunter who is forced by poverty to take the life of other creatures in order to live, while the bears' fates are to die by his gun when 'their time comes'. Kojūrō's awareness, and resignation to, his own fate is demonstrated by the following monologue, directed at the bear he has just shot:

> "Don't think I killed you out of hatred, Bear. I have to make a living, just as you have to be shot. I'd like to do different work, work with no sin attached, but I've no fields, and they say my trees belong to the authorities, and when I go into the village nobody will have anything to do with me. I'm a hunter because I can't help it. It's fate that made you a bear, and its fate that made me do this work. Make sure you are not reborn as a bear next time!"

A belief in karma or fate is expressed in the following passage:

> But in those days there was an order of things—it was laid down that Kojūrō should get the better of the bears, that the shopkeeper should get the better of Kojūrō, and that the bears…but since the shopkeeper lived in the town, the bears did not get the better of him, for the moment at least.

Figure 33: This hand-made sign at the foot of 'Nametoko Mountain' would probably appeal to Miyazawa's sense of whimsical playfulness. It reads: *Nametoko Mountain. Come without guns. From the Bears.* (Photo: Okuta H.)

Through this work, Miyazawa also grapples with the issue of the taking of life, the Buddhist prohibition of which is termed *sesshō*. This is represented in the ethical dilemma which faces the hunter: how he is able to justify his own existence, which is based on the taking of life, and how he is able to gain the acceptance of the creatures he kills. This is the very issue that *matagi* were faced with historically, and which resulted in the creation of a philosophical framework according to which they are able to be 'absolved from the sin of *sesshō*'. This was embodied in the 'foundation book' of the *Yamadachikonpon-maki*, discussed in Chapter Eight, which states that the animals *matagi* hunt are 'gifted' by the mountain deity, provided that they adhere to strict rules and sanctions.

The mountains of Nametoko themselves have also come to embody an ethical message: relating to the treatment of nature by human beings. Figure 34 shows the state of the mountains which were the setting of the story. The beech forest which once covered its slopes has been clear-cut and replaced by plantation coniferous forest. Thus, some conservationists cite 'Mt Nametoko' as a poignant symbol of

Figure 34: 'Nametoko Mountain' today: the beech forest which once covered its slopes has been completely clear-cut**.** (Photo: Okuta, H.)

the post-war habitat destruction which has depleted the once prolific bears of Iwate, and indeed, Japan. [45] The next section will deal with the contemporary status of the bear in Iwate, and the threats to its survival.

10.4 Status of the Asiatic black bear in Iwate

10.4.1 Distribution and population status

A study completed in 1989 estimated that there were approximately 1,000 bears in Iwate Prefecture. A further study, conducted between 2001 and 2002, estimated that there were about 1,100 bears in Iwate Prefecture, distributed predominantly in the northern Ōu mountains in the west, and Kitakami mountains in the east. From these studies, it has been suggested that the bear population is relatively stable.[46] A document published by Iwate Prefecture in 2003 concluded from these studies that there was no risk of the bear's extinction in Iwate Prefecture in the foreseeable future, because there is a 'balance between annual birth rates and harvest rates'.[47] However, at the same time, the report noted that there are fluctuations in annual birth rates (as there are in culling rates), and as population studies are conducted only infrequently, there is arguably a high degree of uncertainty about the bear's population status and trends. It should also be noted that there is far from universal agreement concerning these population figures, which are, after all, only estimates: some observers believe that the population is much greater, while others are convinced it is lower.

According to recent research, there are two morphologically distinct bear populations in Iwate Prefecture. The study compared the skull morphology of the bears which inhabit the Ōu mountains to the west of the prefecture with those of the Kitakami Highlands towards the east of the prefecture, which are separated by the Kitakami River basin. The results indicated that the bears from these two areas have probably been isolated from each other for a considerable period of time, and that the gene flow between them is limited, despite the fact that the distance between the two ranges is only several kilometres at the nearest points.[48] The distinct populations can be clearly seen in Figures 35 and 36.

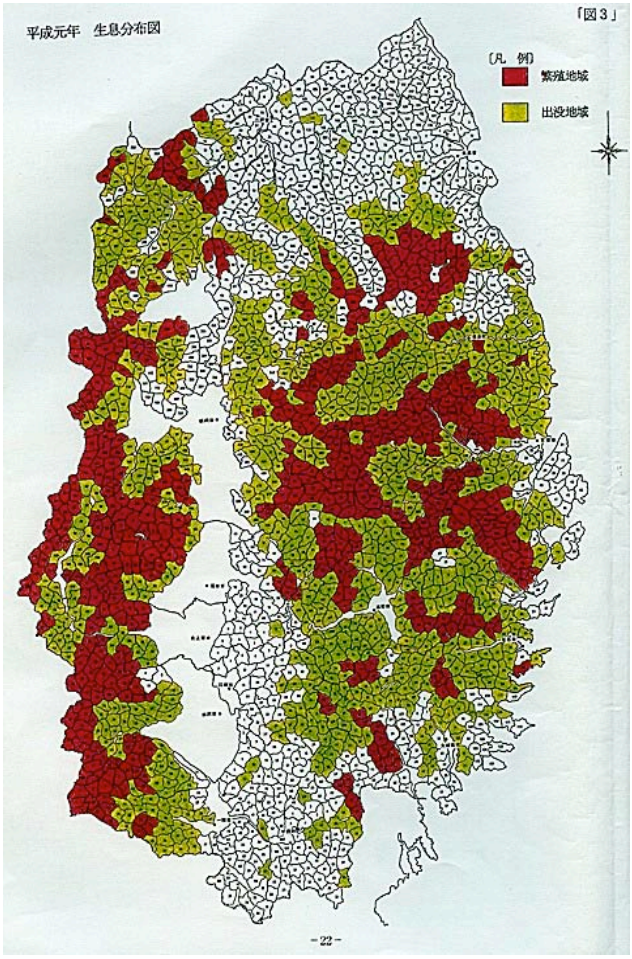


Figure 35: Distribution of bears in Iwate in 1989 . Darker (red) shading indicates areas where breeding activity occurs; lighter (green) shading indicates areas where bear 'appearances' occur. (Source: Iwate Prefecture, 2003)

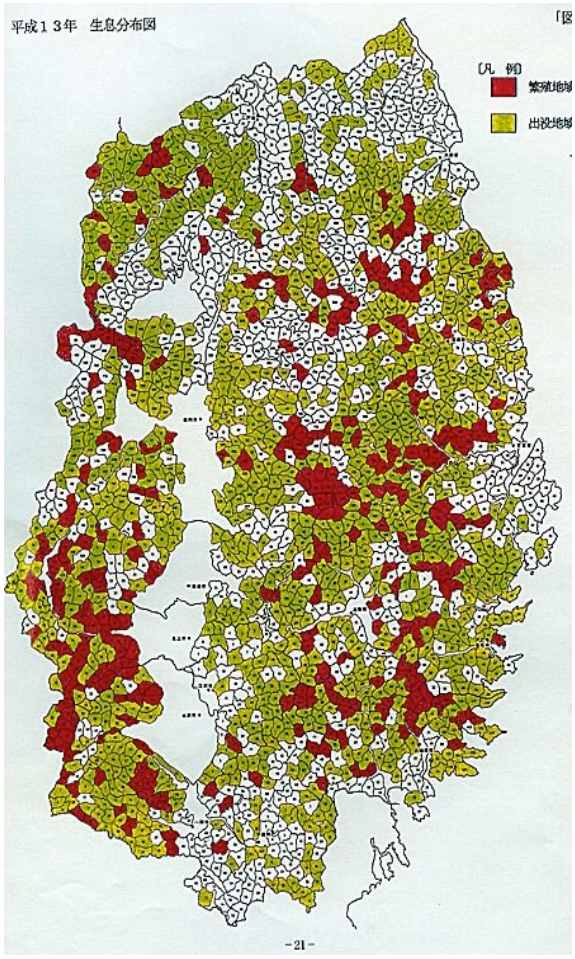


Figure 36: Distribution in 2001. As can be seen, areas in which breeding activity has been confirmed has decreased markedly, while areas in which bear 'appearances' occur has increased. (Source: Iwate Prefecture, 2003)

Studies conducted by the Prefecture have found that the area of overall bear activity (represented by the lighter shading [green] in Figures 35 and 36) has increased, particularly in the case of the Kitakami population. This expansion of overall activity, and particularly feeding activity, is thought to be caused by the deterioration and reduction of the bears' natural habitat and the increase in crops such as corn and apples grown in upland, or forest-margin areas, which serve to attract bears onto or near farms.[49] Other farming practices, such as the dumping of spoilt apples in fields or in the forest, are a significant factor in drawing bears into human inhabited areas. At the same time, the area in which breeding activity has been confirmed to take place (represented by the darker [red] shading in the figures) has decreased over the past decade. This can be attributed to the decrease in availability of suitable sites for denning, such as holes in or under large trees, which are at a safe distance from human noise and activity.

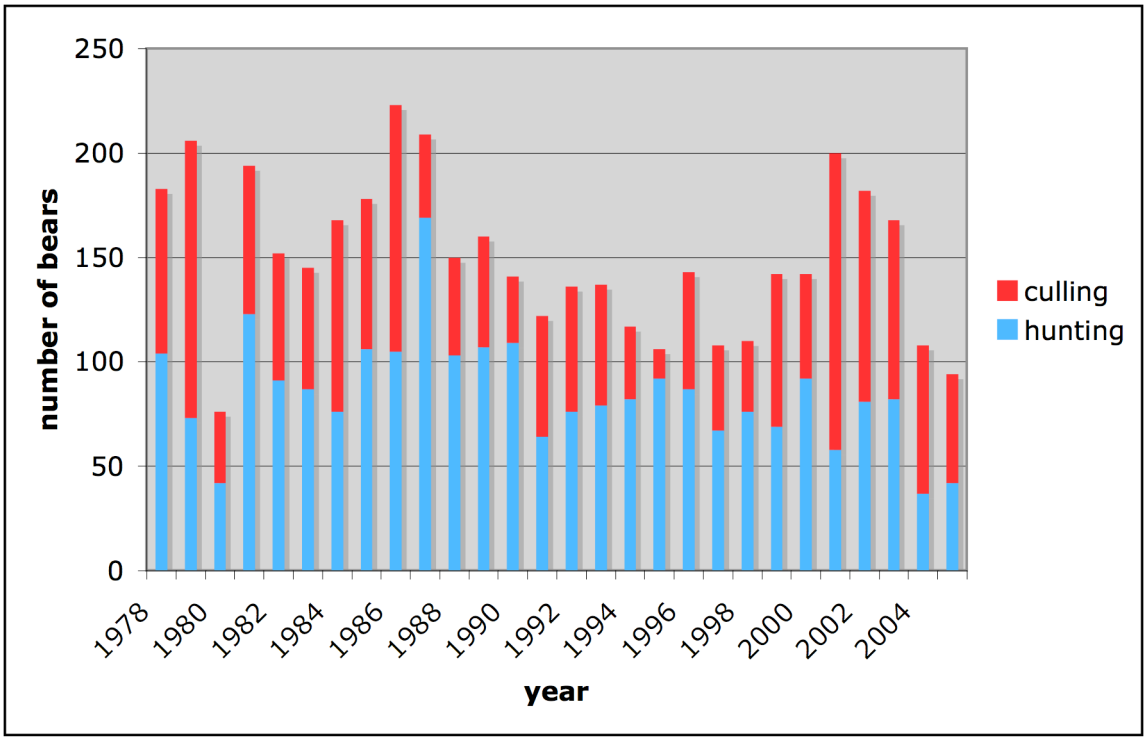
These simultaneous changes in the distribution of bear activity represent two distinct threats to the sustainability of the bear population in Iwate. On the one hand the increase in overall bear activity,

which involves increased activity in human-inhabited areas, has the potential to lead to an increase in human-bear conflict, which, given the current policy, will inevitably lead to an increase in culling. On the other hand, the decrease in areas in which there are suitable sites for breeding and denning has the potential to lead to a decrease in the frequency and success of breeding, which will ultimately impact on the bear population in Iwate.

According to data collected over the period from 1990 to 2005, an average of approximately 140 bears are harvested (through hunting or culling activity) annually in Iwate. Of those, an average of approximately 57 per cent were harvested during the hunting period (15th November to 15th February), while the remaining 43 per cent were culled as 'nuisance bears' following incidents of pestilence, attacks or in some cases, simply sightings.

Obvious though it may seem, these figures do not include undeclared harvests or poaching, neither of which are likely to be uncommon, owing to the highly lucrative market for bear gall and the lack of monitoring and policing of hunting activity.[50] Though there are no figures on poaching available, in the course of his research for the *Iwate Nippō* series on bears outlined later in the chapter, Azumane (1993) was shown one illegal trap in the Ōu mountains, and was informed by hunters that they do occasionally find such illegal traps on their hunting rounds.[51]

Figure 37: Harvests of Asiatic black bear in Iwate Prefecture (1978–2005)



Source: Iwate Prefecture, 2006

As can be seen from Figure 37, while hunting harvests have generally been between 50 and 10 annually, culling figures have fluctuated considerably and are closely connected to the incidence of bear pestilence in a given year. Until the late 1990s, bears harvested through hunting generally outnumbered those harvested through culling. However, in the early 2000s, that pattern had been reversed, with culling numbers generally greater than hunting numbers.

Since 1999, in line with a stronger emphasis on conservation, the Prefecture has set a maximum annual harvest figure, the aim of which is to ensure that the overall population neither decreases nor increases by more than three per cent.[52] For the year 2005, this was set at 110 (37 for the Kita-Ōu population, and 63 for the Kitakami population), and the actual harvest for the year was under this limit, at 94.[53] While it is tempting to conclude from these figures that the actual harvest was a result of the strict adherence to the hunting/culling limit, the main factor in the limit not being exceeded is more likely to be the lower incidence of bear activity in human-inhabited areas in that year: in 2005 there was a comparatively good harvest of beech and oak nuts in the Iwate region. In 2006, by contrast, the cull totalled 219—almost double the limit—owing to the high rate of bear appearances and pestilence in 2006, itself thought to be a consequence of a poor mast.[54]

10.4.2 Environmental pressure on bear populations

The total forested area in Iwate amounts to 1,146 thousand hectares, constituting over three quarters of Iwate's land area.[55] While the total area of forest has not changed significantly over the last few decades, its composition has: namely, there has been a significant change in the proportions of natural broadleaf forest as compared to coniferous plantation forest. As is the case nationally, the cutting of large tracts of indigenous broadleaf forest and subsequent afforestation with coniferous species such as cypress and cedar has dramatically reduced the area of indigenous forest, and thus the natural habitat of wildlife such as bears. This reduction of natural forest as a result of afforestation initiatives was most marked in the 1950s and 1960s when the government encouraged farmers to convert their land to forestry, but has continued, albeit more slowly, in subsequent decades. In 1975, broadleaf forest, dominated by beech and oak, covered 684,000 hectares in Iwate. By 2000, this had decreased to 567,000 hectares, a reduction of seventeen per cent. [56]

As highlighted above, forestry is an important economic activity in Iwate, but, as is the case throughout Japan, it is in steady decline as it becomes less viable in comparison to the cost of imported timber. In 2003, the annual volume of timber harvested in Iwate stood at 974,000 cubic metres, a third of the amount harvested in 1970. Of that, timber from coniferous trees made up 57 per cent (557,000 m^2), while timber from broadleaf forest made up the remaining 43 per cent (417,000 m^2).[57] The volume of timber harvested from broadleaf forest is in steady decline. Whereas until the early 1990s, it tended to be harvested in greater volume than coniferous timber, it has been overtaken

by coniferous timber since the mid 1990s. The downward trend in the harvesting of natural beech forest is, according to prefectural government reports, the result of the increased recognition of the ecological value of natural broadleaf forest, reflected in such initiatives as 'green corridors' and 'wildlife protection areas'.[58] In contrast, there are those who would suggest that the real reason for the decline in the cutting of natural forest is the fact that there is little indigenous forest remaining of sufficient value to harvest.[59]

Due to the lack of comparative data, it is unclear exactly how much forestry activity has impacted on the bears inhabiting the Iwate region. However, based on the incidence of (reported) attacks on forestry workers (see Table 9), it is clear that bears are active in plantation forest areas, leading to encounters with forestry workers. This in turn leads to an increased probability of culling. Anecdotal evidence also points to increased bear appearances and incidents near human-inhabited areas where large scale forest harvesting or afforestation with coniferous species has occurred. For instance, an increase in bear appearances around the Tōno area has been attributed to the displacement of bears from former habitats as a result of the cutting of large areas of natural forest in this district.[60] The destruction or fragmentation of natural forest as a result of forestry activity is also recognised as a key factor which has led to the increase in the bear's roaming range (as seen in Figures 35 and 36).

Furthermore, the development of leisure facilities such as ski fields, golf courses and the roads to service them in the mountainous regions of Iwate has also destroyed or fragmented large areas of bear habitat.[61] More than fourteen ski fields have been built on the eastern (i.e. Iwate Prefecture) side of the Ōu mountains alone, with many more on the Akita side of the range. Ironically, now that the skiing 'boom' has subsided, many of the ski fields built in Iwate during the 1980s and 1990s are in debt, and operators are considering abandoning them. In the area around Morioka, the author was told that only the Appi Kōgen Ski Field in the Ōu mountains was doing well financially, while several others, built during the ski-boom, are floundering.[62] Numerous golf courses are also scattered throughout the foothills of the mountains, and some, such as the Appi Kōgen Golf Course, are situated in the mountains themselves. Additionally, roads, built predominantly to promote tourism, have been constructed through the highest parts of the mountains, making previously inaccessible places accessible to even the most casual weekend sightseer.

This kind of development is believed to have had at least two effects on the bears which inhabit these mountainous regions: it destroys or degrades bear habitat and food sources, pushing bears further towards human-inhabited areas, particularly during the summer and autumn months when they go further afield in search of food; and secondly, by drawing more people into the bear's natural habitat, it is likely to lead to increased human-bear encounters, which in turn leads to increased culling. Given that the assurance of visitor safety is essential to the viability and reputation of resorts or tourist

attractions, any bears sighted around tourist spots are hurriedly 'dispatched'. Azumane (1993) reports that bear appearances and damage became more marked after a large ski field and other facilities such as golf courses, snow-mobile courses and hot-spring resorts were built in the early 1990s just north of the town of Shizukuishi, located in the foothills of the Ōu mountains. Bear appearances are particularly common in the summer and autumn months, causing problems for officials whose aim is to promote Shizukuishi as a safe resort town. As a result, in the early 1990s cullings were reportedly carried out ten to fifteen times a year in and around this resort town.[63]

The construction of infrastructure such as dams is also likely to have had an impact on bear habitat and activity in Iwate, as it is in other bear-inhabited regions, but again, this has not been corroborated by any scientific research. For example, the Yanagawa dam, which is currently being built near Morioka, has been the object of much local controversy, particularly in relation to its impact on the environment. In this case, an impact assessment (see Chapter Four) was carried out, but, according to one observer, it was only cosmetic in nature—sufficient merely to satisfy public demand for some kind of consideration of environmental factors, rather than a serious attempt to assess environmental impacts.[64] A local organisation protesting against the impacts of the dam has shown that polluted water and silt from the dam is flowing into the Yanagawa River from which drinking water for Morioka city is sourced, and have claimed that the environmental impact assessment has been far from rigorous.[65] As there is insufficient legislation to ensure that environmental impact assessment be conducted and subsequently acted upon, no research has been done to ascertain how the Yamagawa Dam or other infrastructural construction projects will affect wildlife in the vicinity, including bears.

10.4.3 The nature of bear pestilence and human-bear conflict in Iwate

There are two major dimensions to the 'bear problem' in Iwate, as there are nationally: bear pestilence (predominantly damage to agricultural and horticultural crops) and human-bear incidents, particularly those leading to injury. Bear pestilence appears to predominate where villages or farms are located in upland and mountainous terrain. They are reported to be particularly prevalent in and around the Kitakami mountains, where, owing mainly to the lower altitudes of the area and the greater level of development and settlement, areas of human habitation and bear habitat overlap more than in the west of the prefecture.[66]

The present author visited several sites of agricultural bear damage in the countryside surrounding Morioka City, including apple orchards and a small dairy farm where the corn crops are consistently 'raided' each year. In the case of the dairy farm, the fields were located in the foot-hills of Mount Iwate, which stood as a majestic backdrop to the farm. Adjacent to the field was a stream in a small gully which ran from the mountains down to the plains. Farms which become the object of pestilence often have these streams running into them—and for bears, they serve as convenient 'road-ways' into

farmland. In the case of the orchards, there were strips of large coniferous trees about three trees wide which ran up the side of orchards acting as wind-breaks. Again, for the bears, these act as ideal routes onto the farms. Thus, it was evident that many farmers and orchardists on the forest margins were—albeit inadvertently—allowing easy access by bears to their property.

It is difficult to get an accurate picture of the extent of bear pestilence (or any kind of wildlife pestilence) in Iwate, as much of it goes unreported. This is usually for one of two reasons. Given the lack of a compensation system for victims of wildlife pestilence, many farmers feel that reporting incidents is not worth the effort. Alternatively, it may be because farmers live in a mountainous area where they expect, and are accustomed to, occasional visits from bears. Both reasons for the failure to report incidents are common in the mountainous region surrounding Tōno, according to the city official who deals with such incidents.[67] Thus, reported incidence of pestilence provides only an indication of the extent of the problem, but it allows researchers and administrators to compare data geographically, chronologically, and with other types of pestilence and damage.

As can be seen from Table 7, crops for livestock feed (mainly dent corn), fruit crops (mainly apples), and vegetables (particularly sweet-corn) are the crops most commonly affected by bear pestilence in Iwate. The composition of bear pestilence to some extent reflects typical cropping patterns: rice being planted mainly on the lowlands, or lower, flatter parts of farm holdings, while orchard crops are grown closer to forest margins. Being a dry-field crop, corn can also be grown on hill-slopes. Therefore, it is likely that the relative geographical proximity of these crops to bear habitat makes them more susceptible to bear pestilence. Not shown in the table is silvicultural damage: bark-peeling damage to forestry is currently not common in Iwate, and is reported only rarely.[68]

Table 7: Break-down of reported agricultural damage in 2004

	Area of damage (ha)	**Cost of damage** (1000s yen)
crops for livestock feed	65.4	9,797
fruit	16.0	5,204
vegetables	11.7	4,019
rice	0.6	55
total	93.7	19,075

Source: Iwate Prefecture, 2005

As can be seen from Table 8, the total area of reported damage has remained fairly constant over the period from 1992 to 2004, except for a peak in 1999 and again in 2002. Though it cannot be determined with any certainty what factors are responsible for these peaks, it is likely that the key

factor is poor harvests of mast trees in those years, forcing bears out of their normal range in search of food.

Table 8: Total value of reported agricultural damage caused by bears in Iwate 1992–2001

Year (abbrev)	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04
Area of damage (ha)	115	122	134	153	162	152	152	190	153	141	255	133	94
Cost of damage (1000s yen)	—	—	—	—	—	—	—	34,579	20,500	22,270	14,800	19,250	19,075

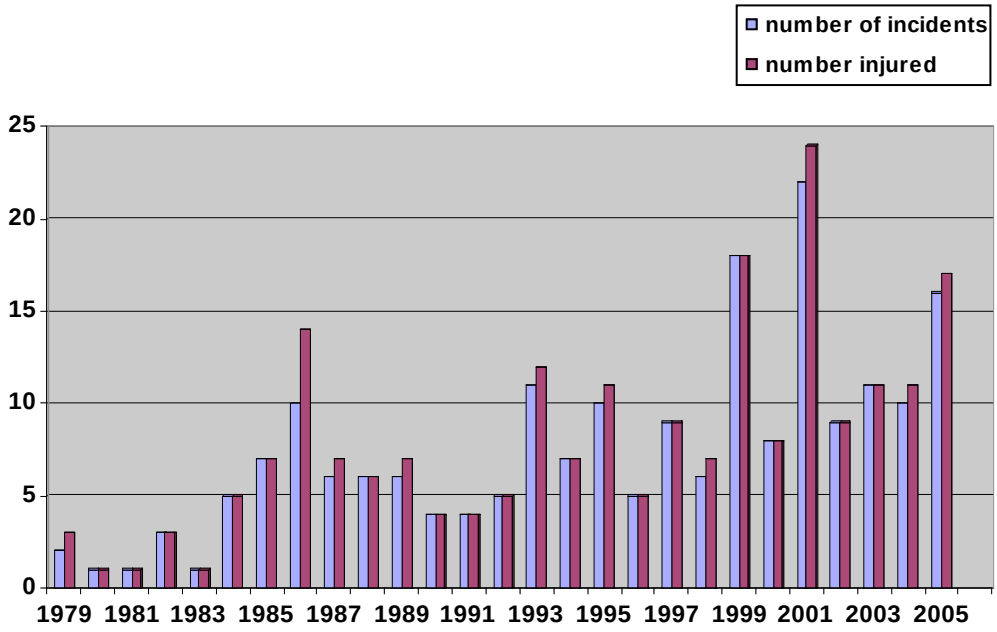
Source: Iwate Prefecture, 2006

Comparative statistics for other wildlife are not available for Iwate, but, based on national statistics, it is likely that deer are the biggest perpetrators of crop damage within the prefecture (wild boar are major perpetrators of pestilence elsewhere, and especially in the western prefectures of Japan, but do not inhabit Iwate Prefecture).[69] Nationally, bear damage is relatively insignificant in comparison to that of animals such as wild boar, deer and crows, and even sparrows, (see Table 1 in Chapter Five), and it is likely to follow a similar pattern in Iwate. For example, in comparison to the 35 million yen for total reported bear damage in Iwate in 1999, the highest level so far, reported agricultural and forestry damage caused by deer in the Goyōsan area of Iwate alone (an area of prefectural park surrounding Mt Goyōsan in the south of Iwate) totalled 38 million yen in 2001.[70]

However, as noted, the total impact of bear pestilence cannot be measured only by its financial cost. For many farmers, the main cost is the psychological trauma that comes as a result of bear pestilence. The fear of the bear returning, and of being injured or even killed by a bear, is likely to cause stress, emotional trauma, and in some cases, leads farmers to abandon farming altogether. (In the latter case, it is usually one of several factors which lead to such a decision, not the sole one.) A survey of farmers conducted in the Tōno area—albeit very limited in its scope—found that three of the four respondents who gave up the growing of corn cited bear damage as one of the reasons.[71]

Turning to injuries caused by human-bear encounters, reported incidents have been on the increase since 1979, when records were first kept (see Figure 38). In the late 1970s and early 1980s, incidence of injury stood at between one and five annually, and has steadily climbed since then to peak at 22 incidents in 2001. About 80 per cent of such incidents have involved people aged 50 years and older, which not only reflects the ageing demographic composition of the rural community, but also the greater vulnerability of older people to attack.[72] Over the period from 1979 to 2001, there were three deaths in Iwate caused by bear attacks.

Figure 38: Human-bear encounters causing injury in Iwate Prefecture



Source: Iwate Prefecture, 2006

As can be seen from Table 9, of the reported incidents which occurred between 1994 and 2001, approximately two-thirds occurred in upland forest areas—in other words, in the natural habitat of bears—while one third occurred in or around human settlements.[73]

Table 9: Location and the type of activity engaged in by the victim of human-bear incidents involving injury from 1994–2001 (Iwate Prefecture)

location	activity	number of incidents
mountain/forest area	collecting wild plants	22
	collecting mushrooms	14
	forestry work	14
	sub-total	**50**
human-inhabited areas	farm work (crop)	12
	farm work (livestock)	4
	collecting chestnuts (near home)	2
	sub-total	**18**
total		**68**

Source: Iwate Prefecture, 2003

In Iwate, the growing incidence of attacks occurring in mountainous forest areas is a problem recognised by prefectural authorities. This has led the Prefecture to undertake campaigns in an effort to make people aware of the fact that when engaging in such outdoor activities as hiking or mushroom gathering, they are in bear-territory, and they therefore need to be perpetually aware of the possible presence of bears, and take precautions such as the playing of a radio, or the use of bells to alert bears to the presence of humans

(see Figure 39).[74] However, such campaigns tend to be poorly funded and dissemination methods usually consist of information being posted on websites and memos distributed among municipal government authorities. There is a heavy reliance on municipal governments disseminating this information to local citizens in their jurisdiction. Thus, communication initiatives tend to have a very low penetration rate and do not appear to be very effective. Communication strategies will be discussed further in the next section.

Figure 39: A sign at the foot of hiking track in the hills near Morioka city asks hikers to be aware of bears. (Photo: C. Knight)

10.5 Bear management in Iwate

10.5.1 Prefectural government structure and the wildlife management function

Iwate's prefectural government is based in Morioka, the prefectural capital, and is made up of a number of offices, departments and bureaus: an Office of General Policy Formulation; a Department of Environment and Life; a Department of Health and Welfare; a Department of Commerce, Industry, Tourism and Labour; a Department of Agriculture, Forestry and Fisheries; a Department of Public Works; a Treasury Bureau, and a Department of General Affairs, as well as various other more minor bureaus and departments. In addition to the prefectural head office, there are twelve regional offices, called 'Regional Promotion Bureaus' (*Chihō Fukkyōbu* 地方振興部), located in the *gun* (predominantly rural districts within the prefecture) the role of which is to deal with the administrative affairs and the promotion of enterprise, industry and tourism within their respective districts.

The wildlife management function is the responsibility of the Nature Conservation Section, (in turn part of the Department of Environment and Life), and the respective Regional Promotion Bureaus for each district. The Nature Conservation Section is primarily responsible for policy formulation, research and monitoring relating to wildlife conservation and management. More specifically, it is responsible for the designation of wildlife protection and non-hunting areas; the monitoring of permits for the capturing and culling of wildlife; and the determining of annual harvest limits, as well as data-collection and monitoring of threatened wildlife. In addition to wildlife management, it is also responsible for the management of natural parks within the prefecture. Day-to-day administrative

tasks relating to wildlife management, such as the issuing of culling permits, is the responsibility of the Regional Promotion Bureaus.

10.5.2 Bear management in Iwate Prefecture

Formal policy and systems for managing the bear date back to the late 1980s in Iwate. Between the years 1987 and 1989, Iwate Prefecture took an important initial step towards a programme to monitor bear populations and habitat in the prefecture, when it undertook its first survey of bear populations and habitat.[75] However, at this time, the procedures and criteria governing the culling of 'problematic' bears remained vague and imprecise: while local authorities had to obtain permits on the basis of actual damage or imminent risk to human safety before a control-kill of a bear could take place, often no confirmation of actual damage occurred and permits were issued simply on the basis of claimed damage. Permits were issued with no consideration of such factors as harvest numbers to date.[76] In 1995, Iwate Prefecture became the first prefecture in Japan to establish criteria and by-laws pertaining to permits for the control-killing of bears.[77] The Prefecture again took on a pioneering role when, in 2001, it issued a 'Relocation Techniques Manual', outlining procedures for the relocation of captured 'nuisance bears' (though there are issues with carrying out relocations in practice, as will be seen).

In March 2003, following the revision of the Wildlife Protection and Hunting Law in 1999 (outlined in Chapter Six), the Iwate Prefectural Government published an 'Asiatic Black Bear Conservation and Management Plan' (*Tsukinowaguma hogo kanri keikaku* ツキノワグマ保護管理計画). This is the second such plan to be established by the Prefecture, following one created for the management of a population of deer in southeast Iwate. Nationally, it was the fifth plan to be established for the bear.[78] This was the first major step in forming a comprehensive framework and policy for the management of Iwate's bear population.

The overall objective of Iwate's 'Asiatic black bear conservation and management plan' is to 'plan towards the co-existence of humans and bears through the maintenance of stable populations of bears in Iwate Prefecture over the long term, the prevention of attacks on humans, and the reduction of damage to agriculture and forestry caused by bears.' [79] The plan was to be implemented over four years from 2003 to 2007. As background to the plan, the document states that 'human-bear conflict, in the form of agricultural and forestry pestilence and attacks on humans, is a major social problem, and appropriate measures for the prevention of damage have become urgent tasks'.[80] According to the document, the two distinct regional populations of bears—one in the Kitakami mountains and one in the northern Ōu mountains—are to be managed as individual populations. As part of the plan, the Prefecture has established maximum harvest limits for the two regional populations, as noted earlier. The limits are reviewed annually, based on population estimates; distribution; agricultural and forestry damage; harvest figures for the previous year; and the previous harvest limits.

The plan is applicable to Iwate Prefecture only. This is a limitation to its effectiveness, as the Ōu Mountains—and therefore their bear population—also cross into the neighbouring prefectures of Akita and Aomori, which currently have no management plans for the bear. There is no coordinated inter-prefectural approach to the bear's management and conservation at this stage, and this lack of coordination between prefectures is clearly a drawback of the current prefectural approach (rather than a wildlife population-based approach) to wildlife management. As a result, Iwate Prefecture has only attempted to ascertain the bear population of the section of the Ōu mountains within its prefectural borders, not for the entire Ōu mountains.[81] Such an estimate is of dubious relevance given that the bear's range is, of course, not bound by prefectural boundaries, and some 'Iwate bears' are also likely to be 'Akita or Aomori bears'. The plan does recognise the need for an inter-prefectural approach to bear protection and management, and while it identifies such an approach as an objective for the future, it fails to specify how this objective will be achieved. There is, however, an inter-prefectural initiative to create a natural forest corridor over the length of the Ōu Mountain Range, and although not specifically relating to the bear, it will, if successful, have a significant part to play in conservation of bear habitat.[82]

The plan states that the Prefecture aims to prevent human injury caused by encounters with bears through communication strategies: by encouraging city, town and village offices to provide guidance to citizens, particularly to sectors of the community most likely to encounter the bear or bear pestilence, such as farming communities and the leisure and tourism sectors. Such communications outline how to avoid encounters with bears and how to avoid attracting bears, through such precautions as the appropriate disposal of organic waste. However, awareness campaigns are limited to only a few media—most often the prefectural government website and inter-office memos to regional and municipal offices.[83] Though the distribution of flyers was being recommended by the Prefecture in 2006, it is not clear how common this is in practice, and how the initiative was to be funded.[84] Owing to the lack of budget allocated to wildlife management, awareness campaigns are not conducted through media (e.g. newspaper, TV, radio) likely to capture a larger audience. Beyond requesting that the regional and municipal offices provide guidance and raise awareness, the Prefecture's strategy does not include

Figure 40: A zoo-keeper at Morioka zoo demonstrating telemetry techniques for tracking a released 'bear'. (Photo: C. Knight)

initiatives on the part of the prefectural government itself, such as prefectural-level education and awareness campaigns or the provision of one-to-one guidance and advice to farmers. Activities to raise public awareness about the bear or the prevention of bear damage tend to be conducted on a small scale, and to be undertaken by non-governmental organisations such as research organisations or zoos. For example, Morioka zoo carries out occasional presentations to zoo visitors about the bear, its life-cycle, habitat and current bear management and research (see Figure 40).

Thus, efforts to make citizens more aware of how to avoid bear pestilence and encounters in Iwate Prefecture to date appear to have been largely ineffective.[85] For example, although orchardists can cheaply and simply avoid attracting bears by burying spoiled apples from their orchards, few take these measures—whether it be through lack of awareness or other factors. Additionally, simply making information available to citizens is not always sufficient to change deeply ingrained behaviour. For instance, when dispatched to see one orchardist just outside Morioka who complained of bear pestilence, a volunteer team from Iwate Prefectural University advised that he dig a pit and bury any apple waste to avoid future visits from the bear. The team then proceeded to dig the pit and dispose of the apples for him. However, only a few months later, on a follow-up visit, it was found that he had reverted to disposing of apples in the prior manner, in a pile in the woods adjacent to the orchard.[86] In another orchard nearby, where bear damage had also been reported, the orchardist had actually had an electric fence installed around the orchard, but had left a gate-sized gap in the fence. It is likely that the bear or bears causing the pestilence entered through this gap. In another example, when the owner of a pig farm in Yahaba-chō complained of pestilence, a bear trap was installed to capture the 'problem bear'. However, because the source of the problem was not removed, bears continued to be attracted to the food source, and were subsequently trapped and killed one after another. In this particular instance the municipal government had recommended the farmer install an electric fence, but clearly this recommendation had not been followed.[87]

Figure 41: An apple orchard near Morioka. This orchard is frequently visited by bears which eat the apples and damage trees. The surrounding hills and forest are clearly visible, showing how unclear wildlife-human boundaries are. (Photo: C.Knight.)

There are limitations evident in other aspects of the Prefecture's bear management also. As mentioned, Iwate was the first prefectural government to trial aversive conditioning and relocation, and the

'Relocation techniques manual' published by the Prefecture in 2001 has since been utilised throughout the country. However, in practice, bear relocation is fraught with difficulty. The problem of finding suitable places to relocate a captured bear means that few relocations actually take place.[88] When this problem was discussed with the official responsible at the Tōno City Office, it was explained by the phrase '*okuyama ga nai*' (a phrase which literally means 'there are no deep mountains'). In other words, what is 'away from the village' to one group of residents is 'near our village' to the next village. This sense among rural people that there is no longer anywhere suitable to release bears is not limited only to Iwate. It has been reported to be a common response in western Japan also.[89]

Any successful relocations rely heavily on the support and time of local researchers, veterinary surgeons and hunters. Therefore, in reality, the only major role the Prefecture plays in this process is the provision of permits to hunters or persons applying to capture the bear. For example, while the prefectural government has veterinary surgeons on its staff, it does not allow them to participate in the capturing and relocation process (for tasks such as the application of anaesthetic) for legal reasons (i.e., avoidance of liability). The process therefore relies on the services of veterinary surgeons in the private sector to volunteer their services.[90]

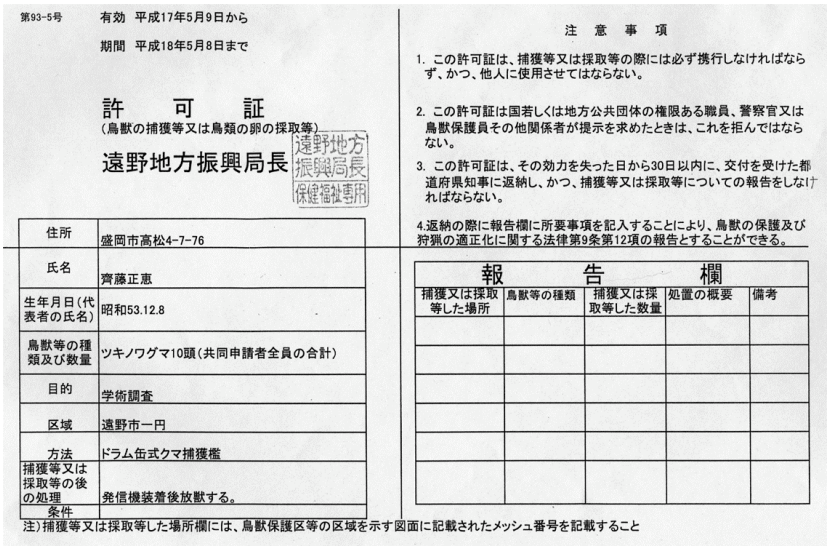
According to the 'Asiatic black bear conservation and management plan', the Prefecture is also committed to the maintenance and regeneration of indigenous broadleaf forest. However, it does not specify to what extent and how this is to be achieved.[91] Subsequent reports on initiatives taken as part of the Prefecture's plan indicate that some progress had been made to replant and regenerate an area of broadleaf forest, dominated by *konara* (*Quercus serrata*, a type of oak) and other masting trees. In 2004, the area of replanted forest amounted to 122 hectares, and the area of regenerated forest totalled 774 hectares. As a percentage of the total forested area of Iwate, this amounts to less than 0.1 per cent.[92] However, as the first initiatives on the part of the Prefecture to replant, regenerate and maintain natural forest, it should not be dismissed as insignificant.

On the other hand, as noted earlier, in some important respects, Iwate prefectural government can be regarded as a pioneer in bear management in Japan. In 2006, Iwate also became the first prefecture in Japan to take the initiative of issuing a pre-emptive warning of the likelihood of high bear appearances/incidents in the coming year (*Tsukinowaguma no shutsubotsu ni kansuru chūihō*ツキノワグマの出没に関する注意報). This warning is based on data gathered from a study conducted from 1993 to 2006 in the Ōu mountain region. The study found that there is a close correlation between mast levels of beech and the subsequent incidence of bear appearances and pestilence in and around farms, towns and villages. The 2005 beech mast in this region was good, and historical data

gained from this study show that the likelihood of a poor mast occurring in the year following a good mast is high. In addition, due to high nutrition levels of pregnant sows going into hibernation in the previous year, a high birth rate is also likely. Thus, as a result of both a high number of sows with cubs and a poor mast in the year following a good mast, there is likely to be a higher level of bear activity around human inhabited areas, particularly over summer and autumn when bears tend to move farther afield to find food. In the warning, which was distributed as a memo and posted on the Prefecture's website in March 2006, shortly before bears emerged from their winter dens, citizens were urged to take particular care in the disposal of spoiled fruit, crops and other waste.[93] Indeed, these predictions were borne out: in 2006, there were 516 sightings/incidents, twice as many as the previous year.[94] On the other hand, there were fourteen incidents involving human injuries (slightly less that the previous year's figure of sixteen).[95] Though it is problematic to form any conclusions regarding the success of the early bear warning system, it is possible to conclude that it was at least a partial success, given that the rate of injury was similar to the previous year, despite a much higher number of appearances.

10.5.3 Bear management at the municipal level

Currently, where an incident of pestilence occurs or a bear is perceived as a threat to safety, the municipal government (village, town or city) or other individual or organisation wishing to cull a bear on these grounds must apply for a consent to capture (and cull) the bear from the Regional Development Bureau for that area.[96] (See Figure 42.) The Regional Development Bureau must in turn consult with the Nature Conservation Department at the prefectural head office to ensure that permits for cullings do not exceed the prescribed maximum limit for that year. (As can be seen from the 2006 example, when the actual cull exceeded the maximum harvest limit by over 100 per cent, this process is not necessarily effective in practice.) While such permits are usually provided within 24 hours of the application and applications are rarely (if ever) refused, some local authorities have expressed dissatisfaction with the process, and would like to be delegated the authority to provide such permits in order to deal more expeditiously with bear incidents, particularly when human safety is threatened.[97] The prefecture's bear



第93-5号　有効　平成17年5月9日から
期間　平成18年5月8日まで

許　可　証
（鳥獣の捕獲等又は鳥類の卵の採取等）

遠野地方振興局長

遠野地方振興局長 保健福祉専用

住所	盛岡市高松4-7-76
氏名	齊藤正恵
生年月日（代表者の氏名）	昭和53.12.8
鳥獣等の種類及び数量	ツキノワグマ10頭（共同申請者全員の合計）
目的	学術調査
区域	遠野市一円
方法	ドラム缶式クマ捕獲檻
捕獲等又は採取等の後の処理	発信機装着後放獣する。
条件	

注）捕獲等又は採取等した場所欄には、鳥獣保護区等の区域を示す図面に記載されたメッシュ番号を記載すること

注　意　事　項

1. この許可証は、捕獲等又は採取等の際には必ず携行しなければならず、かつ、他人に使用させてはならない。
2. この許可証は国若しくは地方公共団体の権限ある職員、警察官又は鳥獣保護員その他関係者が提示を求めたときは、これを拒んではならない。
3. この許可証は、その効力を失った日から30日以内に、交付を受けた都道府県知事に返納し、かつ、捕獲等又は採取等についての報告をしなければならない。
4. 返納の際に報告欄に所要事項を記入することにより、鳥獣の保護及び狩猟の適正化に関する法律第9条第12項の報告とすることができる。

報　告　欄

捕獲又は採取等した場所	鳥獣等の種類	捕獲又は採取等した数量	処置の概要	備考

Figure 42: An example of a hunting permit (Tōno City).

management plan sought to accommodate the concerns of such municipalities by providing that, in emergency situations, municipal governments may by-pass this consent process and deal with the imminent risk posed by the bear or bears, provided that they report the case to the prefectural authority (the Nature Conservation Department) after the capture/culling has taken place.[98]

The Prefectural plan, as noted above, provides procedures, standards and limits in the management of Iwate's bear population. However, provided they work within that framework, municipal governments may to a large extent determine their own approach to the management of bears in their area. Indeed, there is a high level of variability in the approaches taken.

For instance, the town of Shiwa located south of Morioka has engaged in a project to replant publicly owned forest land with broadleaf trees, in an effort to provide bear habitat and to curb bear pestilence over the long term.[99] The town hopes also to gain the cooperation and involvement of private forest owners in the area. This is the first, and only, such replanting project undertaken by a local government in the prefecture, but follows precedents set in Wakayama and Hiroshima Prefectures. The town took this more ecologically-oriented, long-term approach against the background of two main factors: the reduction of broadleaf forest as a result of the national government's past forestry policy favouring afforestation with coniferous species; and the attraction of bears into human-inhabited areas as a result of the inappropriate disposal of food scraps and agricultural waste. The town authorities opted to approach the problem from a wider ecological perspective and with an emphasis on environmental education.[100]

Tōno City, on the other hand, takes a highly managed approach. This is largely in reaction to historically high rates of pestilence and a fatality as a result of a bear attack in June 2001, which led to extreme public anxiety concerning the issue of bear pestilence and appearances. Tōno City is a city of about 30,000 people, located in the southeast of Iwate. It is situated in a basin at the foot of the Kitakami Highlands. Agriculture is the primary economic activity in the area, in which 25 per cent of the local people are engaged.[101] Rice-farming and cattle raising (for both dairy and meat) are the major forms of agriculture.[102] The city is also attempting to develop tourism in the area, mainly on the basis of Tōno being the home of the collection of folk-tales recorded by Yanagita Kunio (1875–1962), *Tōno monogatari*, which are well-known throughout Japan (the town's logo is the fictional *kappa*, which appears in the tales).

The level of anxiety among residents of Tōno heightened considerably following a fatal attack in 2001. Since that time, the city office has assigned a member of its staff to the responsibility of dealing with bear pestilence and incidents (and deer pestilence over the winter season, when the bear is not active). However, as is often the case with these positions, this officer had no expertise or training in

wildlife management, nor did he have a particular interest in the area. His role was mainly to deal with cases of pestilence once they have occurred, as opposed to initiating preventative measures in wildlife management.

The city has implemented a comparatively thorough process for dealing with reports of pestilence. When there is a report of bear pestilence or a request for culling, the official goes to the site, obtains details about the circumstances, including any preventative measures the victims have taken (such as electric fences), takes photos of damage and notes other information. Based on bear-related reports over the course of the year, the city office produces a map annually, on which is indicated all incidents of reported pestilence, sightings and attacks. An electronic version of this map is also posted on the city office website.

The city has also adopted the central government-funded system for the subsidisation of electric fences for a limited number of farmers each year. However the annual budget for the scheme only allows for a small number of these to be installed each year.[103] In 2005, for example, a total of eighteen fences were installed in Tōno.[104] The city official responsible for managing bear pestilence stated that he does not actively promote the subsidy scheme because demand far outweighs supply even without doing so.[105]

There are eight *kujotai* 駆除隊 (culling teams) in the Tōno area. In discussion with the various interested parties (the victim of pestilence, hunters, municipal officials etc), an application is made for a permit either to trap and cull or to relocate a bear. The culling permit is issued to the leader of the relevant team by the Regional Promotion Bureau, usually within twenty-four hours of the application. There are about forty hunters in the Tōno Hunters' Association, but not all hunters are willing and able to deal with bears, and only a few are called upon when there is culling request. Thus, because only a limited number of hunters are prepared to take on this responsibility, it tends to be the same hunters who are asked to deal with a bear-culling time and again.[106] Mr Kikuchi, the hunter mentioned earlier, is one of these individuals. In Tōno, the busiest time of year for trapping and culling requests is in August and September, and over this period, he is sometimes called out every day. According to Mr. Kikuchi, the crops most frequently targeted by bears are corn, fruit (particularly apples) and rice. Not all incidents to which he is called out are ones of pestilence. He is sometimes called out to deal with the carcass of a bear hit by a car or train; incidents which are quite common, particularly at night. All carcasses he deals with are incinerated.[107] One aspect of the process of dealing with bear incidents which should be noted is that, according to both the city official who deals with bear incidents and Mr Kikuchi himself, much of the process aims to make the victims feel reassured, rather than to have any real effect in terms of dealing with the bear. For example, Mr Kikuchi notes that he often deliberately

sets the trap so that bears don't actually enter. In his words: 'Because it's we humans who are at fault' (人間が悪いから).[108]

Another notable aspect is that, according to the Tōno City official, farmers who experience bear pestilence on an annual basis tend not to report damage. It appears to be the people who have rarely experienced pestilence in the past who most commonly report it. This is clear also from the maps of the area indicating reported damage: most reports are for sites located very close to the city and residential areas. Very few are for sites in the hills surrounding Tōno, and yet this is where most pestilence is likely to occur. Thus, there appears to be two distinct ways of reacting to bear pestilence among rural people, depending on geographical location and occupational background. Farmers who are from families who have traditionally farmed in the upland areas have come to expect visitations from bears and other wildlife, and are resigned to it in much the same way as they might be bad weather: a nuisance, but something to be expected every once in a while. The other group are those who live or farm closer to urban areas and are experiencing bear pestilence or visits for the first time. For them, it is disturbing experience—the manifestation of some strange phenomenon against which they want to be protected. This pattern concurs with the pattern described in Chapter Seven.

10.6 Media and public opinion

10.6.1 Media coverage of the 'bear problem' in Iwate Prefecture and its role in shaping attitudes and public policy

It is often assumed that the media have some influence on both public opinion, and ultimately, government (whether central or regional) policy. In 1993, the main newspaper in Iwate, *Iwate Nippō (Iwate Daily)* ran a series on bears which certainly appears to have informed both public opinion and local government policy. The articles stemmed from the editor's desire to run a series relating to the environment which was particularly relevant to the Iwate region.[109] As such, it is an exception to the general pattern of more recent coverage outlined below, which was found to correlate to the frequency of bear incidents.

The newspaper began publishing the series of articles entitled 'SOS Tsukinowaguma' in March 1993, and the articles appeared on a daily basis for about two months. Such a series dedicated to issues relating to the bear, was—and still is—as far as the author is aware, unprecedented in Japan. It examines the bear, its habitat, and issues such as bear pestilence and attacks, highlighting how habitat destruction is at the root of increased pestilence. Its tone is largely sympathetic to the plight of the bear, and at times highly sentimental.

The series begins by describing how the forests around Iwate have, in recent years, become ‘silent forests’, where there is little sign of animal and bird-life, in stark contrast to the journalist’s memories of hiking in the forest in his childhood. It relates how the habitat of the bear is shrinking, and how the bear has become regionally extinct in many parts of Japan. The concept of the bear ‘as a barometer’ of forest health is introduced: an idea which relates to the concept, introduced from Western ecology of an ‘umbrella species’ (see Glossary).[110] The subsequent article examines the ecology and habitat of the bear, and presents the idea of the bear as a ‘fugitive of the forest’, its habitat and food sources being destroyed as a result of the ‘development’ of previously relatively undeveloped mountain forest. The series goes on to describe various aspects of the bear’s life-cycle and its changing habitat, discusses appropriate behaviour when entering bear habitat, and explores the views of hunters, zoo keepers and others who deal or work with bears.

Significantly, the series began one month before the Law for the Conservation of Endangered Species of Wild Fauna and Flora came into effect, under which the bear failed to qualify as an ‘endangered species’; a status required in order to be subject to the law. The series sparked much public comment on the issues it raised, and was followed by some very significant policy changes in regard to the management of bears in Iwate. Even if the timing of the policy changes was merely coincidental, it is likely that the series acted to draw more public scrutiny and discussion of prefectural policy, changes to which may have otherwise gone largely unnoticed. One of the most significant developments which followed the series was the establishment of the Asiatic Black Bear Management and Conservation Committee, comprised of prefectural and municipal government officials, researchers, academics, representatives of the Iwate hunters’ association (*Iwate-ken Ryōyūkai* 岩手県猟友会) and the Iwate Wildlife Conservation Council (*Iwate-ken Chōjūhogoin Kyōgikai* 岩手県鳥獣保護員協議会). This committee oversaw the subsequent drafting of the ‘Plan for the Conservation and Management of the Asiatic Black Bear’ for the prefecture, which took effect from 2003.

One of the issues raised in the series was that of the ‘pre-emptive culling’ of ‘spring bears’, i.e., the culling of bears before they actually cause any damage. This was criticised as simply being a guise for sports hunting, based on the traditional practice of hunting bears in spring, either before, or shortly after they emerge from hibernation.[111] A month later, in April 1993, the Prefecture announced that it was going to introduce an outright ban on pre-emptive culling. This was a policy change that had been in the wings for several years, and cannot be attributed to the series. However, the articles also raised criticism of the very vague criteria for granting culling permits. Soon after, the Prefecture announced that it was going to introduce stricter controls on the issuing of culling permits (noted earlier), including the limitation of the area for which the permit is valid. This was in recognition of the fact that permits were in some cases being issued with no confirmation of actual damage and that

procedures related to culling were generally very loosely followed by prefectural administration.[112] It is likely that in this respect, the criticisms raised in the articles were at least one factor in the Prefecture taking steps to tighten procedures relating to bear culling.

Moving to more recent coverage, a survey of articles relating to bear related issues in *Iwate Nippō* since 1998 shows that the frequency and depth of coverage is erratic, and appears to be dependent both on frequency of incidents and the strength of public feeling and interest in bear-related issues at a given time (which, more often than not, are inter-related factors). Coverage of bear-related issues was measured over the nine year period from 1998 to 2006, and the articles categorised as either 'negative', 'positive' or 'neutral/ambivalent' (as defined in the table footnotes below the table). The findings are summarised in Table 10.

Table 10: Reportage in *Iwate Nippō*

Type of reportage	1998	1999	2000	2001	2002	2003	2004	2005	2006
Sightings, attacks, pestilence, cullings, warnings [negative] [1] (% of total in brackets)	1 (100)	4 (100)	6 (78)	16 (64)	2 (29)	8 (80)	27 (93)	13 (81)	17
Conservation efforts, ecological context, scientific research [positive][2]	0	0	1	6	2	1	1	3	4
Policy, or ambivalent/neutral [neutral] [3]	0	0	2	4	3	1	1	0	5
Total	**1**	**4**	**9**	**26**	**7**	**10**	**29**	**16**	**26**

Notes:

Excludes editorials, ecological/environment columns.
[1] These articles tend to emphasise the potential or actual danger to humans posed by bears.
[2] Includes articles which discuss the ecological causes of bear pestilence, reports on scientific research pertaining to the bear, reports on conservation efforts, or efforts to raise public awareness of ecological issues pertaining to the bear.
[3] Includes reports on policy or initiatives regarding management of the bear, which is mainly neutral in nature; also includes articles which contain equal elements of both negative and positive (e.g. reportage on sightings/attacks, which also examines the ecological background to the problem, and conservation approaches).

Overall, the survey suggests that interest in bears and bear-pestilence has been growing in the last decade. The number of articles featuring the bear differed markedly from year to year, but the overall trend is an increase. The content of the articles over this time is also fairly consistent: the majority of articles in all but one year (2002) emphasise the actual or potential danger caused by bears, focusing on sightings, attacks, pestilence and cullings. In this way, coverage generally shows a similar pattern to that evident in the national sample outlined in Chapter Seven. Over the period surveyed, the total number of articles peaked in 2001, 2004 and 2006. In the case of 2001, many articles followed a fatal attack in Tōno which occurred in June of that year. In both 2004 and 2006, the relatively high number of articles can be attributed to a high number of bear incidents in those years, not only in Iwate, but across Japan, which followed a poor beech nut mast over a wide region.

As in the case of newspaper coverage of the 'bear problem' nationally in 2006, there is a clear change in tone in coverage in *Iwate Nippō*. Of the 26 articles which appeared in *Iwate Nippō* (online) in 2006, 11 correctly identified either the underlying causes of bear pestilence (habitat depletion), or measures for preventing pestilence (such as disposing of food and crop waste properly) or both—in other words, a growing number contained information to raise awareness concerning the 'bear problem' and the human responsibility for the phenomenon, rather than simply reporting on the facts of the incident. Similarly, in comparison to previous years, a larger number of articles cited expert opinion or scientific research. This may in part be explained by the pioneering research which has been conducted in the Iwate region linking beech mast rates with bear pestilence, and the Prefecture's initiative early in the year to issue a 'bear warning'. Perhaps owing to its being a regional, rather than national, media organisation, the newspaper appears to be taking a proactive stance in its role in working with the Prefectural government and the research community to disseminate information regarding the bear and the 'bear problem'.

10.6.2 Public opinion

Although somewhat dated, an opinion survey of the voting public in Iwate Prefecture conducted by the *Iwate Nippō* company in 1993 provides some insight into public opinion concerning the issue of bears in Iwate. Respondents were asked what approach should be taken to manage bears. 31.9 per cent chose 'bears cause damage to crops and attack humans, so control killing cannot be avoided'; 38.7 chose 'conservation policies such as [further] restrictions on the hunting period'; and 23.3 per cent chose 'bears should not be killed under any circumstances, but returned to the forest'. In total then, 62 per cent of respondents supported some form of conservation policy, which, when further broken down in terms of age-group, showed that younger respondents tended to be more supportive of conservation policies: 79.8 per cent of those in their twenties and 73.7 of those in their thirties were supportive of conservation policies, in contrast to only 49.1 per cent of those in their sixties or older. The occupational breakdown of respondents is also enlightening: 50 per cent of those employed in the agricultural, forestry or fishing industries responded that 'control-killing was inevitable', while between 60 and 70 per cent of 'housewives' or 'salaried employees' supported conservation measures.[113]

A survey conducted in the same year to ascertain the level of public knowledge regarding the bear indicates that general knowledge about the bear was very limited. Only ten per cent of the more than 900 people surveyed correctly guessed the bear's average weight (80 kilograms), while 40 per cent guessed 250 kilograms, and 21 per cent guessed 350 kilograms. In addition, 41 per cent of respondents thought that the bear ate meat (from animals such as rabbits and deer) as its primary source of food.[114] Thus, a large proportion of respondents thought that the bear was a largely carnivorous creature three to four times larger than the average adult human. Such misconceptions on

the part of an ill-informed public are likely to impede the success of a conservation approach to the management of bears. Clearly, someone who believes the bear is a large, dangerous and carnivous creature is more likely to be antagonistic towards efforts to protect either the bear or its habitat.

A study conducted in 1999 (Fujihara, 2000) in two villages in the Tōno area found, not unexpectedly, that where attacks causing injury to humans occur in a particular area, the attitude of residents towards bears becomes predominantly negative.[115] Following the fatality in Tōno in June 2001, attitudes towards bears hardened both among residents and municipal government officials alike. Bears were control-killed after simply being sighted near residential areas, whether or not any damage was evident. Some municipal offices in Iwate requested that the process for authorising trapping and control-killing be delegated to municipal governments so that municipal government officials would be able to respond more quickly to any actual or perceived threat posed by bears in their area. While not granting this request outright, the Prefecture allowed for local authorities to by-pass the permit process in emergency situations, as noted above.

Bear-related anecdotes in the above-mentioned *Iwate Nippō* series demonstrates the complexity of the dynamics among the human parties in human-bear conflicts. For example, the journalist recounts an incident in which a bear had been repeatedly seen wandering around near a 'service area'[116] on the Tōhoku Highway which runs north-south through Iwate Prefecture. Officials at the regional Japan Highway Public Corporation offices wanted the bear culled and had already applied and received a permit from the Prefecture to do so. However the hunter who had been called in to cull the bear had a different view on the matter: 'That is only a bear cub. It should just be sent back to the forest', he insisted. The hunter finally acquiesced, but was actually moved to tears when at last he shot the bear, which at 35 kilograms, was indeed only a yearling. The hunter later commented: 'If a bear appears in the open like this, it is usually either because it is hungry or because it is the mating season and it is looking for a mate. Before resorting to a panicked frenzy at the appearance of a bear, people should think about it from the bear's perspective for a moment'.[117] This incident shows that despite the temptation to examine wildlife conservation and management problems in terms of one group in society (such as pro-hunting groups) against another (conservationists or 'animal lovers'), it is certainly not this simple. In Japan, it is often hunters, particularly those who have experience hunting or culling bears, who have the highest levels of understanding of the bear, its behaviour, needs and pressures caused by a changing environment.

Similarly, members of the public can in some cases be overwhelmingly supportive of a 'problem bear' being culled, while in another situation, they will show great empathy and patience in dealing with a bear in difficult circumstances. One such instance of the latter is detailed in one of the *Iwate Nippō* articles, where a sow and two cubs became trapped between two river embankments. Members

of the public spent five hours trying to rescue the bears before the sow finally managed to climb out unassisted, with one cub in her mouth and one clinging to her back. Subsequently, drivers waited patiently to allow the bears to cross the highway into the forest in safety. Another example is of a rescue effort involving a cub which had become separated from its mother, and then, frightened, took refuge 20 metres up a cedar tree. Members of the public arranged for a crane to retrieve the cub, before returning it to forest where its mother was last seen.[118] These cases show how members of the public can be extremely empathetic when encountering a bear in distress, and spend hours of their time trying to assist. Yet if these same bears had been discovered in different circumstances (for example, wandering near a farm or near a highway service area), they are likely to become the object of fear and anxiety and demands for immediate culling. These instances show that generalisations about how different groups of people perceive or deal with bear issues fail to reflect the complexity evident in society. Responses tend to differ markedly depending not only on the individuals involved, but possibly more importantly, depending on the circumstances of the bear incident.

10.6.3 Animal welfare issues relating to bears

In Chapter Two, the non-interventionist approach of the Japanese religious and cosmological framework concerning animal welfare was discussed. Two examples illustrate the lack of a strong ethical dimension in the perception of animal welfare issues.

In May 2005, the author visited the Ani Bear Park in Akita. This is the only facility for bears in captivity in Tōhoku, and bear cubs orphaned by hunting in Iwate have also been taken to this facility in the past. While called a 'park' in English, there is little resembling a park about the facility. As described in Chapter Five, the complex is made up of three large concrete enclosures, devoid of trees, grass or vegetation of any kind. The complex's one hundred bears were housed in three enclosures, entirely of concrete, with no shade except for the concrete bunkers in which the bears sleep (see Figure 43). The floor of the enclosures was littered with bright yellow faeces, the colour owing to the corn content of the pellets that the bears are fed by visitors. Only one enclosure had a small pond of water in which the bears could play or bathe. Many of the bears displayed repetitive behaviours such as head weaving and bobbing, pacing, paw

Figure 43: An enclosure at Ani Bear Park. (Photo: C. Knight)

'clapping' as well as extreme lethargy, or aggression. One bear had an amputated fore-leg as a result of injuries incurred in a fight with another bear. Several bears were observed eating each other's faeces. Pop-music played continuously over the facility's loud-speakers. Overall, the complex is designed and operated with little consideration for the welfare of the animals, and from the author's point of view, it was difficult to conclude that the conditions in which the animals are kept were anything other than inhumane.

However, observing Japanese visitors at the complex, including the students from a major Tōhoku university, the author was unable to discern any obvious emotional reaction to seeing the bears in these conditions. Nevertheless, staff at the facility clearly held a strong sense of affection for the bears, knowing them all by names, and knowing each of their individual personalities and habits. The young male staff member who showed us the bear cub in the facility demonstrated unmistakable affection for the cub under his care (see Figure 44). When discussing the bear with the amputated leg, the same staff member stated that because the bear was in the facility, its life had been saved after the injury—had it been in the wild, it would not have survived. (The paradox that the injury was caused by the over-crowded and unnatural conditions in the facility had apparently not occurred to him.) Thus, the absence of any obvious moral concern for the welfare of the bears should not be mistaken for a lack of fondness for the individual animals. However, this sense of affection did not translate into a sense of moral indignation about the condition in which the bears were kept, as it is more likely to in the West.

Figure 44: Staff member of park holding bear cub (Photo: C. Knight).

Another example of these notable ideological and moral juxtapositions in regard to welfare and perception became evident on the return trip from Akita to Morioka, through the Ōu mountains. Our group stopped at the Hachimantai Visitor's Centre, a recently built facility not far from the peak of Hachimantai mountain, close to the prefectural border between Akita and Iwate. The visitor's centre provides information and multi-media displays of the flora, fauna, and geology of Hachimantai, including several displays about the bear. One display (Figure 45) shows the bear in its forest habitat. Clearly a considerable amount of effort has been put into giving the visitor an accurate impression of the bear's forest habitat, and information about the bear was comprehensive and scientifically accurate.

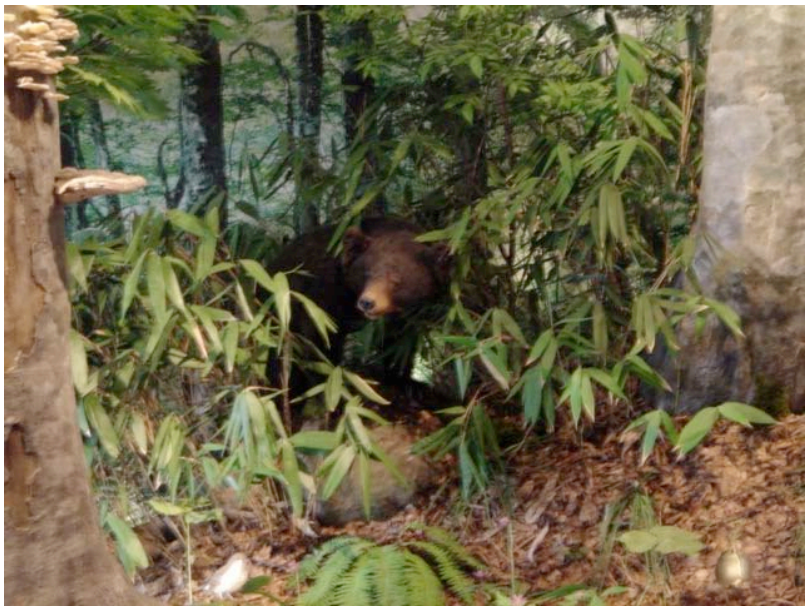


Figure 45: A display at Hachimantai, showing the bear in a forest environment (Photo: C.Knight)

After leaving the visitor's centre our group crossed the road to the entrance of an *onsen* (hot-spring) and restaurant. At the road-front of the complex was a small cage, with a hand-made sign reading 'Jun, the Asiatic black bear' (月の輪熊ジュン) (see Figure 46). The iron cage in which the bear was kept was about a square metre in area, with an enclosed 'annex' for sleeping in. The cage was too small for the bear to walk or stand up in. The author was told that the bear has been kept in the cage for as long as our guide remembered (i.e., several years at least).

Figure 46: A bear in a cage outside a restaurant in Hachimantai. (Photo: C.Knight)

The author was struck by the great contrast in the two situations, demonstrating two divergent aspects of the contemporary human-bear relationship: one is a perspective which places the bear firmly in its forest ecosystem and attempts, through the provision of information about its habitat, biology, diet, behaviour and so on, to inform, and reinstate a sense of respect (this time based on science, rather than folklore) for the creature. The other is a perspective which presents the animal isolated from its natural habitat, as an object to be 'put on display' for human amusement. This second perspective is devoid of both the traditional respect, rooted in folklore, which was accorded the bear, or the new 'ecological' respect, which sees the bear as a part of the forest ecosystem, with important ecological functions.

The sight of a bear in extremely cramped, unnatural, and from a western perspective, inhumane conditions such as the two instances highlighted above will tend to elicit a comment like '*kawaisoo*' or '*nasakenai*' (poor thing!) from Japanese visitors, but not the moral indignation that is likely to be a

common reaction in the West. While the Japanese observer is very likely to feel sorry for the bear, they are also likely to accept without question the inevitability of the situation, and not attempt to intervene. In this response, Buddhist fatalism and inevitability of suffering (for both humans and animals) is perhaps evident. In these contexts, this reaction is limited in its repercussions to the welfare of individual animals. However this attitude may also have the potential to underpin the public response to the bear's ecological plight, leading to some extent to a sense of inevitability in the discourse on the decline of the species.

10.7 Summary and conclusions

This chapter has surveyed the various aspects of human-bear interaction in Iwate from pre-history to the present day. Significance has been assigned to the bear at least since Jōmon times in Iwate, as evidenced by bear effigies and bear bones used for magico-religious purposes, teeth for accessories, and a number of items decorated with bear motifs found in the region. Some scholars have suggested that some of these artefacts point to rituals similar to the Ainu sending ceremony (which was to develop in the Historical Ainu Period from approximately A.D. 1200), though there is no conclusive evidence of this. Overt cultural significance of the bear resurfaces many centuries later within the context of *matagi* hunting culture. The bear was central to both the material and spiritual lives of the *matagi*. The traditional respect accorded the bear is reflected in the Miyazawa Kenji tale, *The Bears of Nametoko*.

The population of bears in Iwate is estimated to be approximately 1,000, and relatively stable, though monitoring is not conducted at adequate levels to be conclusive. There are two distinct populations in Iwate, one in the Ōu Mountains in the west, and the other in the lower Kitakami Mountains in the east. According to studies, it appears that the area in which breeding activities takes place is decreasing, probably at least partially as a result of a loss of suitable places for denning. At the same time, the area of overall activity is increasing, and encroaching into areas of human settlement, also as a consequence of the reduction of natural bear habitat. This is leading in turn to increased human-bear conflict. During the period from 1990 to 2005, an average of 140 bears were harvested annually, both through culling and hunting. In recent years, the numbers harvested by culling has consistently outnumbered those harvested through hunting. In 1999, a maximum annual harvest rate was set, with the aim of ensuring that the population does not fluctuate by more than three per cent, though in reality, this is not always adhered to, as was seen in 2006.

There are two main sources of environmental pressure on bears in Iwate. Firstly, the cutting of natural forest and afforestation with coniferous species, which cannot support the nutritional or breeding requirements of bears. Secondly, the building of roads and other infrastructure, leisure and tourist

facilities in mountainous areas, which acts both to destroy or fragment bear habitat, and leads to more human activity in mountainous areas.

Though no figures are available for Iwate itself, judging from national figures, agricultural damage caused by bears is likely to be a fraction of that caused by other wildlife such as deer and crows. However, as is the case nationally, perhaps the greatest 'damage' caused by bears is psychological rather than physical: the psychological trauma causes by appearances or attacks—an experience which may contribute to a farmer's decision to give up farming altogether. Human-bear encounters causing injury have increased steadily since records were first kept in 1979. Most of these incidents occur in forested area when the victims are engaged in activities such as collecting wild foods or forestry work. In about 80 per cent of such incidents the victims are 50 years old or older. A recent study has linked the frequency of such incidents with the mast of beech and oak species: where mast is poor, human encounters with bears increase. Based on this information, in March 2006 Iwate Prefecture issued its first 'high bear-incidence warning' in an attempt to make the public aware of the risk of bear encounters and take precautions to avoid incidents.

In the course of field-work conducted in Iwate, particularly in Tōno, it became clear that there is a marked delineation in the way in which people respond to bear pestilence, depending on factors such as family and occupational background and geographical factors. People who live in forest-edge upland areas, and whose families have traditionally farmed in this geographical setting, tend not to report bear damage, being accustomed to the occasional visits of bears. On the other hand, people closer to the towns, who have not experienced bear encounters, tend to most frequently report bear incidents or sightings.

Apart from a one-off series published by *Iwate Nippō* in 1993, and consistent with the pattern evident nationwide, newspaper reportage on the bear is predominantly negative; reporting mainly on bear attacks or pestilence, and only rarely on conservation initiatives or the bear in ecological context. Surveys of the public in Iwate have found that knowledge about the bear is poor. A study in 1999 produced the unsurprising result that the attitudes of people tend to harden following bear pestilence and especially attacks.

Iwate is often held up as one of the pioneers in bear management. Indeed, it was one of the first prefectures to establish a bear management plan, and there are a number of research initiatives in the prefecture including habitat and population studies and studies on the effect of mast levels (many of which are conducted by researchers independent of prefectural government). However, like most other prefectures, Iwate is dogged by the problems of under-resourcing, understaffing and lack of expertise for the wildlife management function. Thus, most prefectural initiatives are reactive rather

than preventative in their approach to bear management—responding to periods of high human-bear conflict with memos and communications to municipal governments, rather than engaging in measures to prevent human-bear conflict. Public education initiatives by the prefectural government are limited mainly to information on their website.

The objectives set out in the bear management plan (to maintain a stable population of bears, to reduce pestilence and to prevent attacks on humans) are important from a conservation and management perspective. However, like most other prefectures, Iwate Prefecture lacks the budget, staff, expertise and resources to take the actions necessary to achieve these goals. What initiatives actually do take place towards these goals rely heavily on research organisations and volunteers. Another major issue is that the prefectural system for managing wildlife means that there is no integrated regional approach to managing populations. The northern Ōu mountain population, for example, extends over Iwate, Akita and Aomori, yet of these, only Iwate has a formal plan for the bear's management.

The relative progressiveness of the prefecture in bear management can be attributed first and foremost to the fact that it has a relatively large bear population and is still a largely rural prefecture (in area—not necessarily in population distribution), therefore human-bear conflict is an aspect which affects more people than in more urbanised prefectures. Secondly, it can be linked primarily to the fact that there happens to be a number of highly motivated individuals who are active and interested in bear management (many of whom, incidentally, were not originally residents of Iwate). It is the author's opinion that, however tempting it may be to do so, the comparatively progressive approach in Iwate cannot be attributed to any deep-rooted cultural affinity with the bear in the region. While there are undoubtedly historical factors at work in the way in which upland people interact with, and perceive, the bear, the perceptions of the urbanised low-land-dwelling majority in Iwate (who also tend to be responsible for administrative functions) are largely indistinguishable from perceptions of the urbanised majority elsewhere in Japan.

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[1] Iwate Prefecture, 2003: 1.
[2] Aono, Birukawa & Nihon Chishi Kenkyūsho (eds), 1975: 18–23.
[3] Aono et al (eds), 1975: 35–52.
[4] Aono et al (eds), 1975: 52–55.
[5] Iwate Prefecture, 2004(a).
[6] Friday, 1997: 4.
[7] Hanihara, 1990: 37.
[8] Friday, 1997: 5; Howell, 1994: 77.
[9] Aston, 1972: 200.
[10] Aston, 1972: 203.
[11] Examples of place names in Iwate which appear to be of Ainu origin are 葑内 *Shidanai* (meaning in Ainu, 'river from which water is drunk'); 江釣子 *Ezuriko* ('place where the gods play'); 邑良志別 *Orashibe* ('the river where there is a big rocky place') (Kuji, 2002: 12). (It should be noted that the Chinese characters used here do not

correspond with the original meaning of the words, but are used for their sounds only.) In addition, the 'tō' in the place name Tōno is said to be derived from the Ainu word for lake (Yanagita, 1975: 12).
[12] Friday, 1997: 4.
[13] Friday, 1997: 4.
[14] Friday, 1997: 4.
[15] Kuji, 2002: 204. It should be noted however, that there is no indication in the *Tales of Tōno* itself that these beings are descended from the Emishi, though the commentary by Yanagita does make it clear that *yamabito*, goblins, and so on are regarded as 'strangers' or 'others'. In some of the tales, this is made explicit by the use of the term *ijin* 異人 (meaning 'other', 'stranger' or 'inhuman') to refer to them (Yanagita, 1975: 30).
[16] Iwate Prefecture, 2004(a).
[17] Kodansha, 1993: vol. 1, 643.
[18] Kodansha, 1993: vol. 1, 643.
[19] Iwate Prefecture, 2004(a).
[20] Statistics Bureau of Japan, 2006: 37.
[21] Statistics Bureau of Japan, 2006: 19.
[22] Statistics Bureau of Japan, 2006: 49.
[23] Iwate Prefecture, 2005: 99.
[24] Statistics Bureau of Japan, 2006: 105.
[25] Japan Statistical Yearbook, 2006: 254.
[26] Iwate Prefecture, 2004(b).
[27] Iwate Prefecture, 2005: 100–1.
[28] Iwate Prefecture, 2005: 27.
[29] Iwate Prefecture, 2004(b).
[30] It should be noted that the wild boar historically inhabited the Iwate area, but this is no longer the case.
[31] Kusaka, 1998: 203.
[32] Toyama Prefecture Tateyama Hakubutukan, 1994: 28.
[33] Toyama Prefecture Tateyama Hakubutukan, 1994: 32, figures IV–2, IV–3; Kusaka, 1998: 203.
[34] *Iwate Nippō*, 15 September, 2001.
[35] Kusaka, 1998: 205; Toyama Prefecture Tateyama Hakubutukan, 1994: 33, figure IV–8.
[36] Ōta, 1998, 12.
[37] Tōno Municipal Museum, 1998: 33, 35.
[38] Tōno Municipal Museum, 1998: 1, 35.
[39] Tōno Municipal Museum, 1998: 43, 45.
[40] Maekawa Saori (Tōno Municipal Museum), 前川さおり, May 23, 2005, personal communication (Tōno, Iwate).
[41] Kikuchi T., May 23, 2005, personal communication (Tōno, Iwate).
[42] Kodansha, 1993, vol. 2, 990–1.
[43] It has been suggested by one of the foremost scholars in *matagi* culture, Taguchi Hiromi, that Kojūrō was based on an actual hunter, named Matsuhashi Wasaburō 松橋和三郎, a contemporary of Miyazawa's who was active around Hanamaki at the time Miyazawa wrote the story (Taguchi (2001), as cited in Nakaji, 2002).
[44] Translation adapted from *Winds from Afar*, translated by John Bester (1972).
[45] This story is frequently referred to by those writing on the subject of bears, particularly in respect to the human role in the destruction of bear habitat. For example, in one newspaper article, the writer laments that he has visited Mt. Nametoko (near Hanamaki City in Iwate) and found that most of the forest had been cut and only a little of the original beech forest remains. He wonders, 'where have the bears of Nametoko mountains gone?' (Fujihara, 2004).
[46] Oka, 2003: 51–2.
[47] Iwate Prefecture, 2003: 1.
[48] Amano, Oi, & Hayano, 2004.
[49] Iwate Prefecture, 2003: 4.
[50] As noted previously, hunters are self-regulated through the hunters' association which operates in each region. There are obvious issues with members of an association policing and, where necessary, sanctioning, the activities of their fellow members, many of whom they are likely to have a close personal or working relationship with.
[51] Azumane, 1993: 73–4.
[52] Iwate Prefecture, 2003: 1.
[53] Iwate Prefecture, 2003: 3.
[54] Ministry of the Environment, 2006.
[55] Statistics Bureau of Japan, 2006: 254.
[56] Iwate Prefecture, 2003: 2–3.
[57] Iwate Prefecture, 2005: 101.
[58] Iwate Prefecture, 2003: 2–3.
[59] Azumane, 1993: 120.

[60] Azumane, 1993: 112–3
[61] Azumane, 1993: 4, 30; 93; 109.
[62] Sakamoto Yoshihiro 坂本芳弘, personal communication, May 30, 2005 (Morioka, Iwate).
[63] Azumane, 1993: 97.
[64] Fujimura M., personal communication, May 28, 2005 (Morioka, Iwate).
[65] Citzen group to consider the Yanagawa dam and nature, n.d.
[66] Fujihara, 2000: 13; Oka, 2003: 53. According to Oka, this area has long been subject to development: forest was cut as fuel for iron smelting; land was cleared for grazing of horses (for which the Tōno region is well-known); and further forest was cleared and afforested with coniferous species (predominantly larches) subsequent to the 1951 revision of the Forestry Act. Since the 1970s, the area has been developed for stock-raising, and the lower hills and mountains have largely been converted to larch plantation forest or pasture. 'Climax forest' (forest dominated by trees representing the culminating stage of natural succession for that specific locality and environment) remains only in fragments (Oka, 2003: 53).
[67] Saitō Hiromi 斉藤博見 (Tōno City Office), personal communication, May 24, 2005 (Tōno, Iwate).
[68] Iwate prefecture, 2003: 6.
[69] Uchida, 1984: 736.
[70] Iwate Prefecture, (n.d.a).
[71] Fujihara, 2000: 15.
[72] Iwate Prefecture, 2003: 6.
[73] Iwate Prefecture, 2003: 6.
[74] *Iwate Nippō*, June 14, 2005.
[75] Iwate Prefecture, 2003: 1.
[76] Azumane, 1993: 49–52.
[77] Fujimura M., personal communication (email to author), March 21, 2006.
[78] *Iwate Nippō*, September 6, 2002.
[79] Iwate Prefecture, 2003: 1.
[80] Iwate Prefecture, 2003: 1.
[81] Iwate Prefecture, 2003: 4–5
[82] Iwate Prefecture, 2003: 3, 12; *Iwate Nippō*, March 11, 2002.
[83] Iwate Prefecture, 2003: 7.
[84] Iwate Prefecture, 2006(a).
[85] *Iwate Nippō*, June 14, 2005.
[86] Sakamoto Y., personal communication, May 22, 2005 (Morioka, Iwate).
[87] Fujimura M., personal communication (email to author), November 21, 2006.
[88] Oka, 2003: 51.
[89] Kurisu, 2001: 100. It can be argued that this is simply a form of the NIMBY ('not in my back yard') sentiment reported in literature concerning environmental issues in the West, albeit with reference to the specific geographic features of the human-bear conflict issue in Japan.
[90] Aoi Toshiki 青井俊樹, personal communication, May 27, 2005 (Morioka, Iwate).
[91] Iwate prefecture, 2003: 8, 12.
[92] Iwate Prefecture, 2006(b).
[93] Iwate Prefecture, 2006(a); *Iwate Nippō*, March 21, 2006.
[94] Iwate Prefecture, 2006(c).
[95] Ministry of the Environment, 2006.
[96] In this respect, the procedure followed in Iwate Prefecture follows a national model, though the administrative organisations may vary depending on region.
[97] *Iwate Nippō*, September 27, 2002.
[98] Iwate Prefecture, 2003: 10. 'Emergency situations' include situations where a bear has entered a person's property or is in school or hospital grounds, or where human injury has occurred in a human-populated area.
[99] This is the town featured in 'Three Decades of Shiwa', a work documenting economic development and social change in what was at that time a 'farming village' (Shimpo, 1976). Unfortunately, the study does not discuss wildlife pestilence.
[100] *Iwate Nippō*, September 2, 2002.
[101] Tōno City, n.d.
[102] Iwate Prefecture (n.d.b).
[103] Iwate prefecture, 2003: 7.
[104] Iwate Prefecture, 2006(b). This is a sizable proportion of the total number of fences installed in the prefecture for that year: in total, 45 fences were installed in the nine towns and cities which participated in the scheme.
[105] Saito H., personal communication, May 24, 2005 (Tōno, Iwate).
[106] Kikuchi T., personal communication, May 23, 2005 (Tōno, Iwate).

[107] Kikuchi T., personal communication, May 23, 2005 (Tōno, Iwate).
[108] Kikuchi T. , personal communication, May 23, 2005 (Tōno, Iwate.).
[109] Azumane C. 東根 千万億, personal communication, May 31, 2005.
[110] *Iwate Nippō*, March 8, 1993.
[111] *Iwate Nippō*, March 25, 1993.
[112] *Iwate Nippō*, April 29, 1993.
[113] Azumane, 1993: 87.
[114] Azumane, 1993: 147.
[115] Fujihara, 2000: 13.
[116] An area where drivers can stop to rest, eat, attend to vehicle requirements and so on.
[117] *Iwate Nippō*, March 9, 1993.
[118] *Iwate Nippō*, March 10, 1993.

Chapter Eleven: Conclusions

11.1 Introduction

This thesis has explored the human-bear relationship in Japan from pre-historic times through to the present. In this study, the bear has acted as a 'window' through which to view Japanese cultural history and society. Through this 'window', the Japanese relationship with the 'wild nature' which the bear inhabits, and with which it has become intrinsically associated, has been explored. The study has reflected on the way the 'bear problem' provides insights into the status of wildlife conservation and rural-urban disparity in Japan. It has also set out to understand how historical perceptions of the bear (and its habitat) inform contemporary ones; and whether or not regional differences are apparent in the contemporary response to the 'bear problem'. In this chapter, conclusions will be drawn from the study, based on the questions set out in Chapter One. Each question will be dealt with under a separate section heading in the sections which follow. The chapter will end with some final conclusions, including the overarching question: what is the future for the bear in Japan?

11.2 The human-bear relationship in contemporary Japan (Question 1)

The current study has examined two key aspects of the contemporary human-bear relationship: that of human conflict with bears in the wild, and the treatment of bears in captivity. Of these two dimensions, it is human-bear conflict that is most dominant in the public and media discourse, and which will have the greatest impact on the future of the bear in Japan. It is on this dimension that this thesis has primarily focused.

In the previous chapters, the nature of human-bear conflict in Japan, and the Japanese response to it, was examined. It was found that, unlike in North America, where the majority of human-bear conflict occurs in 'bear country', i.e., national parks and reserves, into which humans enter for recreational purposes, much of the conflict in Japan occurs where bear habitat and human spheres overlap in and around upland forest-edge settlements. In this sense, human-bear conflict in Japan tends to resemble more the pattern of human-wildlife conflict in developing, rather than developed countries, where growing populations and limited cultivable land are forcing people further into forest-edge areas to make a living from agriculture. Indeed, increasing human populations are a major factor leading to human-wildlife conflict in many countries in Africa and Asia. In contrast, in Japan, people have traditionally settled and made a living in forest-edge regions, and a major factor leading to the growing problem of human-wildlife conflict is the *decreasing*, rather than growing populations in these areas. As these upland populations diminish and age, the ability of communities to defend themselves against unwelcome visitors decreases. Historically, the occasional visit by bears to the outer fields of upland villages to feed on fruit or nut trees was likely to have been viewed as a natural

consequence of living adjacent to the forest, but now, as villages grow increasingly desolate and devoid of activity, the bear is venturing closer to human dwellings and fields. In addition, bears are now encroaching near or into human settlements at lower altitudes. Thus, in this respect, i.e., in rural depopulation being a key factor in the increase in human-bear conflict, the situation in Japan is, as far as the present author can ascertain from the literature, unusual—if not unique—among countries which support bear populations.

However, rural depopulation has only exacerbated an issue that has been brewing for many decades: that of habitat destruction and degradation. As outlined in Chapter Four and Five, this has been the primary factor leading to declining and fragmented populations. As noted, habitat depletion has the effect of displacing animals onto human territories, and is the key cause of human-wildlife conflict worldwide. In this respect—namely, in terms of habitat destruction being at the root of human-bear conflict—the Japanese situation mirrors cases of human-wildlife conflict all over the world.

It has been proposed in the human dimensions literature that the *perception* of danger and risk is often more pivotal to attitudes and responses to wildlife than actual experience of pestilence or depredation, as demonstrated by the studies outlined in Chapter Two. This was also found to be the case in Japan: people who have historically experienced bear pestilence most frequently in Japan (those farming in upland areas) tend to have more tolerant attitudes towards bears than those who live or farm in the foothills or lowland areas who rarely experience bear pestilence. Residents living in the foothills or lowlands report more fear and anxiety concerning bears, and are more likely to report appearances and pestilence and call for the bear to be culled. In contrast, urban residents, being unaffected by wildlife problems, tend to be most influenced by conservationist principles in their views concerning the bear. Thus, while in many societies a significant gap is evident between rural and urban attitudes towards wildlife and wildlife conservation (as documented for example in the Mexican wolf recovery programme and carnivore reintroduction programme in the European Alps), in Japan, a three-way delineation is evident: that between urban dwelling citizens, rural lowland/foothill dwellers, and rural upland dwellers. In addition to more universal factors, such as demography and education, this delineation reflects Japan's specific geography, and historical patterns of settlement and livelihood.

11.3 Historical representations of the bear: metonym for *okuyama* (Question 2)

As was seen in Chapters Eight and Nine, there is substantial regional and geographical variation in the way the bear was viewed historically. Judging from archaeological artefacts from the Jōmon and Yayoi Periods, it is surmised that the bear was not only valued and utilised in pre-historic times for its practical uses (e.g., meat and hides) but that it also had symbolic value and possibly had a role in ceremonial rituals such as spirit-sending ceremonies or ceremonies to supplicate the gods for a successful hunt. This is particularly likely in the case of the northern Tōhoku area, and especially

Aomori, where the majority of Jōmon and Yayoi Period bear effigies and bear-motifed articles are concentrated.

However, when lowland-based agrarian culture began to spread from the southwest northwards from the Yayoi Period onwards, the bear appears to have lost much of its significance in Japanese mainstream culture, appearing only in the occasional Heian poem and dictionary entry, and only much later, in the Edo Period, as the object of a few paintings and the occasional encyclopaedic reference. Bears only rarely appear in folktales, and even then, generally only in some variations of a particular tale, substituting for another animal. Representations of the bear in historical lowland culture tend to be ambiguous and vague, and in the case of reference works, information is often misleading or incorrect. In the case of bears depicted in paintings, it was suggested that these depictions were informed more by historical Chinese depictions of tigers or other animals than any attempt to realistically portray the bear itself. This leads the present author to suggest that these representations are not based on actual observation or experience of live bears, but hearsay and the workings of the imagination.

Where the bear is represented in poetry, it is in most cases explicitly associated with the realm of *okuyama*—a mysterious and frightening place associated with death and the 'other world', in which deities, ghosts, monsters and other such 'other world' beings reside—to the extent that it appears to be metynomous with this realm. In Heian Period poetry, the appellation *araguma* encapsulates concepts of 'wild' and 'untamed' and reinforces this association between the bear and the *okuyama*. In this sense then, it can be said that in Japan's lowland cultural history, any symbolism attributed to the bear was largely in its association with the *okuyama*, rather than attributed directly to the bear itself.

In comparison to its relative absence in mainstream lowland-based culture, the bear was important in upland hunting culture, and evidence of the bear's importance is particularly apparent in the folklore of the *matagi* communities, which are thought to have become established from the mid-sixteenth century onwards. The *matagi* hunters also associated the bear with the *yama*, and its patron deity, the *yama no kami*, but its association with this realm is much more positive than in lowland culture. To the upland dweller, the *yama* represented not only the source of water and the source of wild and destructive weather that could destroy crops (as it did for the lowland dweller), but more importantly, was the origin of most food sources, both animals and plants, on which upland dwellers relied. The *yama* (*okuyama*) was therefore the very basis of the uplander's subsistence lifestyle. In respect to the bear itself, the upland hunter admired it for a number of positive attributes which were based on actual observation rather than speculation or imagination, such as strength and maternal dedication. Furthermore, the bear was attributed with special powers: its pelage was viewed as sacred; it was seen

as the messenger of the *yama no kami*; and it is likely to have been associated with the power of rebirth, for its apparent ability to be 'reborn' every spring.

Thus, the bear was closely connected with the realm of the forested mountains in both upland and lowland culture. However, while the lowlander's imagery was largely negative, focusing on the remoteness, wildness, loneliness and potential danger of this realm, the imagery evident in upland folklore is generally positive: the bear was the largest and most valuable creature under the *yama no kami*'s patronage, and was associated with positive attributes such as courage, strength and motherly devotion.

11.4 The interrelationship between historical and contemporary perceptions: bear as symbol of *okuyama*; bear as 'boundary crosser' (Question 3)

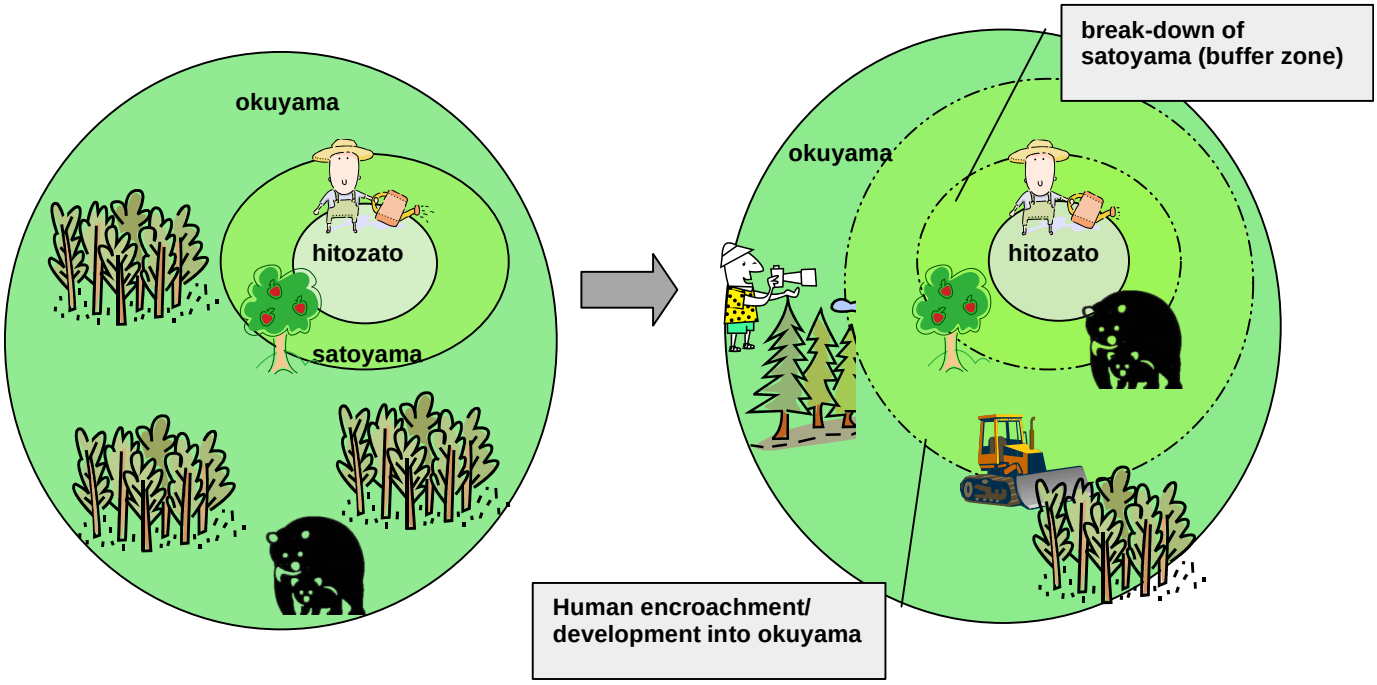
Given the demise of *matagi* and other upland hunting cultures over the last century, and given that government bodies, media, research organisations and so on are based in lowland areas and dominated by those with 'lowland' heritage, it is the mainstream imagery of the bear that now dominates discourse concerning, and responses to, human-bear conflict. This manifests itself, the present author proposes, in the perception of the bear as a 'boundary crosser', namely, an unwelcome visitor encroaching on the human-inhabited realm from its natural realm of *okuyama*. In Chapter Two it was suggested that the heightened interest in human-animal relations in anthropology worldwide is driven in part by the increasing level of boundary crossing occurring between humans and animals. This can also be said of the public discourse concerning wildlife conflict in Japan. The heightened level and urgency of discourse concerning the issue of human-bear conflict stems in part from the increase in the magnitude of the 'bear problem', but it is the present author's suggestion that it is also, in large part, a consequence of a general sense of public discomfort with this phenomenon of boundary crossing. The idea of a bear appearing on one's farm or in one's garden would probably be disturbing for most people in most countries, but for the Japanese, a strong socio-psychological dimension adds to the sense of unease which such encounters create. As discussed in Chapter Seven, this relates to the sense of 'place' which the traditional divisions of landscape into *hitozato*, *satoyama* and *okuyama* encompass.

It was also noted that this idea of abnormality is encapsulated in the term *ijō shutsubotsu*: a term commonly used in media reports in particular to describe bear sightings near towns or villages. Such appearances are said to result in *seishinteki higai* or 'psychological trauma'. As Knight (2003) notes, psychological trauma has the effect of making familiar and 'safe' places seem frightening, and in many cases acts to restrict human movement in them.[1] This is clearly seen in cases of human-bear conflict in Japan, where residents of rural villages express anxiety about venturing outside their homes for fear of being attacked by a bear.[2]

In the same way that *okuyama* is both a geographical space and a social-psychological one, the same dualism can be seen in the function of the *satoyama*. Until recent times, the area of *satoyama* around the village served as a kind of 'buffer zone' between human settlements and the forested mountains. For most rural Japanese, who have led a predominantly agrarian lifestyle from the Yayoi period until the early twentieth century, the realm of nature with which they had day-to-day interaction was that of the *satoyama*. There was rarely a requirement for lowland Japanese to enter the vast realm of *okuyama*. Even in the case of upland Japanese, it was only entered for specific purposes such as hunting, wood-cutting and swidden farming.

The *satoyama* was once a rich source of many natural resources such as fuel wood, green fertiliser, mushrooms and other foods. As such, it was kept well-maintained by villagers, who picked fruit and nuts from the trees, pruned and thinned out trees and plants, and cut back grass and undergrowth. However, as discussed, owing to rural depopulation and changes in technology which have made resources such as fuel wood and green fertiliser less necessary, *satoyama* areas are no longer places of frequent human activity, and are merging with the forest proper, from which they used to be quite distinct. This has led to the breakdown of the *satoyama*'s traditional function as a 'buffer zone' between human inhabited villages and the mountainous forest, leading in turn to bears and other wildlife venturing into human inhabited areas with increased frequency. This phenomenon is represented in Figure 47.

Figure 47: Shifting of geographic boundaries between *hitozato* and *okuyama* over time



As illustrated by Figure 47, the boundary crossing has been occurring in both directions. Not only is the *satoyama* buffer zone breaking down, but human encroachment into the *okuyama* has increased over time. This encroachment is both direct (involving human presence in the mountains) and indirect (involving human activity which destroys or fragments habitat, or makes habitat more accessible to traffic and other human activity). Examples of the former include large numbers of (mostly urban-dwelling) people entering what used to be remote forested areas for weekend drives, wild-food collecting activities, leisure activities such as skiing, fishing or hiking, and so on. While it may be argued that local inhabitants have always entered the forest for both traditional subsistence and ascetic religious purposes, in these instances, the number of people involved and the scale and destructiveness of the activity was much more limited, and people were acutely aware that they were entering 'bear territory' ('*kuma ga sumu okuyama*'). Now, thanks to the network of alpine highways which traverse Japan's highest and most rugged mountain ranges, and the kiosks, souvenir shops and rest-stops which are conveniently located along these tourist routes, people are able to enter what were once 'wild places' for a casual Sunday drive, with only a faint awareness that they are in wildlife habitat.

Examples of less direct forms of encroachment are large-scale forestry, the construction of roads, tunnels, dams, ski fields, resorts and other infrastructure and facilities. These activities not only destroy or fragment habitat, they also increase the human presence and level of activity in bear habitat, often displacing bears from affected areas. As a consequence, human destruction or modification of habitat or human presence in habitat is now apparent in many parts of what were previously relatively untouched mountains. In this sense, then, it might be suggested that it is not the bear but humans who are the primary 'boundary crossers', and that the human presence in bear habitat is a form of *ijō shutsubotsu*, or abnormal appearance, at least from the perspective of the bear. In addition, this encroachment of humans into the sphere of *okuyama* has resulted to some extent in what can be termed as its 'psychological taming'.

The depletion and fragmentation of natural mountain forest in Japan manifests itself not only in the 'bear problem' itself, but in practical aspects of managing the 'bear problem'. In the previous chapter, the issue of having few places suitable for relocations was raised. This situation was explained using the phrase *'okuyama ga nai'*, or '*fukai yama ga nai'*, which can be (somewhat clumsily) rendered into English as 'there are no deep mountains'. However, this is inadequate to translate the *mentality* of this phrase. What this expression symbolises is the Japanese tendency to connect the bear with the geographic realm of the *okuyama*: as long as it stays in the *okuyama*, its 'rightful' place, its perceived threat to humans is diminished. But this phrase *'okuyama ga nai'* succinctly encapsulates the problem underlying human-bear conflict in Japan: that through human activity, the realm of *okuyama* has been drastically reduced (both physically and conceptually), and in cases where a bear cannot be returned

to the *okuyama*, it must be destroyed so as not to pose a threat to humans, thereby completing a 'cycle of destruction' for the bear.

11.5 The evaluation of regional differences (Question 4)

It was found in this study that there has been a history of human interaction with, and reverence for, the bear in northern Japan since Jōmon times at least. Indeed, in some upland areas in Tōhoku, such as Ani in Akita Prefecture, there is evidence of there having been traditional models for coexisting with bears. This raises the question: is there any evidence of the contemporary response to bears in the Tōhoku region being any different from elsewhere on the archipelago, given this long history of human-bear interaction?

In response to this question, the present study has not found evidence that these traditional models have had any discernable influence on current management practices regionally, especially at the administrative level. This is likely to stem from the fact that prefectural and municipal administration is generally centred around lowland urban culture and thinking, far removed from the traditional heritage of the uplands. For instance, in Iwate Prefecture, policies and initiatives do tend to be more progressive than in many other regions but this is attributed mainly to human factors (a core group of people interested in bear management, many of whom are from outside the prefecture), rather than linked to the region having a long history of human-bear interaction. In any case, both Aomori and Akita, which could also make similar claims to a deep-rooted history of human interaction with bears (particularly in the case of Aomori which boasts the highest numbers of bear-shaped artefacts from the Jōmon and Yayoi Periods), are not noted for their progressive stances on bear management—both lack even a management plan for the bear.

Nevertheless, there is undeniably scope for incorporating traditional knowledge into wildlife management practices, and several researchers, wildlife experts and administrators interviewed for the present study discussed their desire for this to occur. As was seen in Chapter Six, Hazumi has urged the Ministry of the Environment to establish a wildlife management system in which traditional local knowledge, or 'know-how', in upland rural areas is utilised and passed down to future generations. He suggests that each region has its own unique approaches to dealing with aspects of daily life, including wildlife pestilence, and because each place is unique in its natural and cultural features, or *fūdo* 風土, this local knowledge is essential to creating a system which is suited to each community. As noted, by creating specialist wildlife positions in the public service, people attracted to these roles may act as conduits for the valuable local knowledge relating to wildlife, particularly in upland areas where people have learnt to live with wildlife in close proximity. But some caution is required here. Discussion of *fūdo* (the natural features, climate, and culture of a specific place) is innately appealing and creates a sense of nostalgia for a time when 'humans lived in harmony with nature' (as with the

discourse on *kyōzon*, or coexistence). However, given that the economy, society, and lifestyles have altered greatly during the twentieth century, traditional approaches alone are no longer enough. For example, wildlife management experts have urged for the need to reinstate the clear boundaries between wildlife and human 'habitat' using the traditional buffer zone of the *satoyama*. For this to be successful, a prerequisite must be healthy and vigorous upland communities. However, since the 1950s, these areas have been suffering heavy depopulation, and the inhabitants of upland communities are now characterised by a large proportion of elderly people. It is unlikely therefore that the coming years are going to see any significant revival of the communities in these areas, and thus it is not realistic to expect these declining communities to revive *satoyama*, nor can the *satoyama* be expected to fulfil the same functions as it has traditionally. Therefore, the delineation may not always be able to take this traditional form. Rather, it will need to take new forms such as electric fences or perhaps other more novel forms such as the use of grazing cattle noted in Chapter Five.

11.6 The bear as a 'social barometer' (Question 5)

In the *Iwate Nippō* series, outlined in the previous chapter, the concept of the bear 'as a barometer' of forest health was discussed.[3] The present author proposes that the bear is not only an indicator of the health of the mountainous forest environment in Japan, but also a barometer of Japanese society: the 'bear problem' is a reflection of the Japanese relationship with this environment and the wildlife within it, and, as a manifestation of social disparity, it is a measure of the health of rural Japanese society.

Firstly, turning to the bear as a barometer of the way Japanese value wildlife and wild nature, the human-bear conflict issue leads to the question as to why wildlife conservation has been, and arguably still remains, such a low priority in Japanese politics and society. As was discussed in Chapter Six, as a result of the 1999 revision of the Wildlife Protection and Hunting Law, central government has devolved the responsibility for wildlife management of all but the most critically endangered species to prefectural governments. While being delegated this extra responsibility, local governments are provided with no extra financial or technical resources, nor any training or expertise to carry out wildlife management duties in their areas of jurisdiction. Furthermore, there is no compulsion either to establish or implement a management and conservation plan for any species. In effect, as the law stands, the central government will not take responsibility for the conservation of a species or its habitat until its population dwindles to a point where it is under a serious and immediate threat of extinction. Even then, the lack of wildlife habitat set aside and protected is so limited that any measures to protect the species are rarely effective.[4]

However, the lack of value placed on wildlife conservation is of course much more deep-rooted than these recent legislative and administrative changes. What is the philosophical framework

underpinning the relative neglect of wildlife conservation in Japan? In Chapter Three, the concept of wildlife being 'without owner' (*mushubutsu*) was discussed. As outlined, this connects to the concept of 'stewardship' in the West, an idea which has been historically lacking in Japan. It was this concept—the obligation of human beings to care for nature and animals over which they have dominion—which underpins the contemporary nature and wildlife conservation movement and philosophy in the West. In contrast, in Japan, nature and animals were traditionally considered equal to human beings, at least in the sense of their possession of 'godliness', and nature has been considered as possessing the capacity to regenerate itself almost without limit. As a consequence, in Japan, the nature conservation philosophy or movement did not spring out of an urgent sense of moral obligation based on religious constructs or concepts: rather, the first environmental movements were based on an immediate concern for human health and livelihoods threatened by the industrial pollution crises of the 1960s and 1970s. As illustrated by the example of the crane, outlined in Chapter Two, the cultural or symbolic significance of an animal does not appear to have any discernable influence on how its conservation and protection is prioritised.

Another underlying philosophy becomes evident in the public and media discourse concerning human-bear conflict, namely, the concept of *kyōzon*, or coexistence. This concept also encapsulates the idea of equality between humans and animals (and nature), as evident in the philosophical framework outlined above. The concept of *kyōzon* features frequently in works and discourse relating to the environment, including Environmental White Papers published by the Ministry of the Environment, prefectural management plans, environmental NGO publications, media reports on wildlife and nature conservation issues, and fictional works such as the Miyazaki Hayao film *Mononokehime* (1997). It also appears frequently in media reports and other discourse concerning human-bear conflict. Many NGOs or groups formed to examine the 'bear problem' see the goal of 'coexistence' with bears, or wildlife generally, as their aim.[5] In fact it is rare to find a discourse of some kind on wildlife conflict which does not feature this word. One possible reason for this is that the idea of *kyōzon* is an ideal which has an appealing resonance. It is often used in a nostalgic sense, as in, 'we Japanese used to live in a way which co-existed with nature—we just have to go back to our roots.' However, in reality, the steps to resolve human-wildlife conflict are far less idealised and lofty: they involve a high level of political, economic and social commitment over a long term and, by and large, are practical measures involving hard work and compromise by substantial sectors of the community.

Thus, the 'bear problem' can be seen as a reflection of a historical reluctance of a society to take responsibility for both wildlife and the resolution of wildlife conflict issues. This involves managing nature (both in the sense of the natural world and 'natural destiny of things'), the pre-requisite of which is what Maita (1998) refers to as the adoption of 'public ownership' as the basis of an effective

wildlife conservation ethic, as noted in Chapter Two. This is an approach which, in theory, goes against the Japanese philosophy of allowing 'nature' to take its course. However, as will be seen below, it is the present author's argument that the magnitude of the 'bear problem' may well act as a spur for the Japanese to adopt a more 'stewardship-based' approach to wildlife management.

The 'bear problem' is also a 'barometer' of the health of rural, and especially upland, society in Japan. As these communities have declined, the boundaries between *hitozato* and *yama* have become blurred, and the largely elderly residents remaining in these communities have been left ill-equipped to safeguard themselves or their livelihoods against the bear's increasingly frequent visits. Indeed, as was discussed in Chapters Five and Ten, for those affected by the problem, bear (or other wildlife) pestilence may be enough to lead a farmer, particularly the elderly small-holder, to abandon farming altogether. While it is unlikely to be the only issue leading to the decision, it may become 'the straw that broke the camel's back'. For these people, who receive no compensation or government assistance, wildlife pestilence may represent the ultimate signal that Japan as a nation has not only 'turned its back on agriculture' but on older generations also. Therefore, the 'bear problem' is a social problem encompassing key aspects of social welfare, as pointed out by Hazumi (2006) in Chapter Five. Its resolution will therefore depend on the Japanese government confronting this problem and investing in measures to resolve it; a proposition which runs counter to the trend towards devolution and administrative rationalisation in rural areas.

11.7 The importance of cultural, historical, social, and geographical factors (Question 6)

It is tempting to generalise about a particular nation's treatment of nature or wildlife, but this study shows how multifaceted a society's perception of wildlife and its management may be. It has been demonstrated that historical, social, geographical and other cultural factors have an influence on the perception of an animal, and, perhaps more importantly, the human response to conflict with that animal.

When interviewing people involved in bear research and management in Japan, one theme was a recurring one. Several people expressed frustration at what they see as the Japanese government blindly copying a model of wildlife conservation and management developed in countries such as the United States: a model which is ill-suited to Japan's geography, culture and history. They suggest that rather than looking overseas—and particularly to a nation so dissimilar, geographically, socially and historically as the United States—for a model for wildlife management and conservation, government policy makers and bureaucrats would be better to look to Japan's own cultural history for a model on which to base an effective system of wildlife management. For example, these people often point out that whereas in the United States there is a system of preserving and setting aside large areas of

national parks which are then governed by strict rules limiting their use, such a model is impractical in Japan, where no vast areas of public land exist.[6]

Certainly, there are characteristics which make the Japanese situation quite different from North America. Firstly, in Japan, national parks cannot simply be 'fenced off' with strict regulations as to utilisation, and dedicated to wildlife management as is the case in other countries. This is because national parks are not solely under the jurisdiction of the state, but are comprised of land under both public and private ownership. Even where the government does have ultimate jurisdiction over an area of land, this is not necessarily the Ministry of Environment—it may also be under the jurisdiction of the Ministry of Forestry or other ministries, in which case, profits from forestry, mining or other activities often take higher priority over wildlife conservation. This is a reality of the national park system in Japan, and though less than ideal, is unlikely to change in the near or even medium term. In any case, natural (including national) parks do not encompass an area expansive or diverse enough to provide adequate habitat for species such as bears, even if their protective function was more robust. Therefore, in Japan, it will be critical to resolving human-bear conflict over the long term that important wildlife habitat such as beech forest be protected not only in national parks but also in areas owned by municipalities and private forest-owners in order to provide forest corridors extensive enough for the bear to freely move, eat and breed without being impinged on by human activity, or conversely, impinging on human territory. For this to be successful, there needs to be a high level of cooperation from private and non-governmental organisations, a pre-requisite of which will be educative efforts to raise awareness of the bear's ecological needs and the causes and prevention of human-bear conflict.

There are also important cultural considerations: the Japanese have for a long time inhabited and made a living from areas adjacent to upland forest areas, and have thus 'shared' these landscapes with wildlife, referred to as 'multi-use landscapes' in the literature. The sharing of landscapes with wildlife such as bears means that the potential for conflict between wildlife and humans in the course of daily life is higher than in countries where wildlife spheres and human spheres of settlement are more separate and distinct. This is especially the case where natural habitats and traditional buffers between human and wildlife spheres have deteriorated, as is seen in upland Japan today. Given this, the re-delineation (*sumiwake*) of human-settlements and wildlife habitat, using the traditional 'buffer zone' area of the *satoyama* or an equivalent, is critical. As noted, given the decline of upland rural communities, it may not always be possible for this delineation to take this traditional form; alternative forms such as cattle grazing or planting of unpalatable crops are other methods of creating a demarcation between wildlife and human spheres.

Furthermore, as has been demonstrated, an important social dimension is that human-bear conflict disproportionately affects a group of people (elderly farmers living in remote upland areas) who are already disadvantaged by rural depopulation (out-migration of younger generations), the decline of forestry, and a general lack of social and economic support. As noted in Chapter Two, it is generally rural people who bear the costs (both financial and social) of living with wildlife worldwide, and Japan is no exception. It is suggested that these costs should instead be met by the nation as a whole, because the benefits from biodiversity conservation are derived equally by the national public.[7] Thus, the resolution of the human-bear conflict situation must take into account the circumstances of rural communities engaged in farming, horticulture, forestry and other land-based enterprises through economic, technological, educational and welfare initiatives and support, such as compensation for wildlife damage and subsidies for preventative measures (e.g. electric fences), in order to safeguard their livelihoods and safety.

For any of these initiatives to be effective, there needs to be a much higher level of understanding and cooperation among the public, private organisations and administrators than there is currently. Thus, educative efforts to provide a fundamental level of knowledge and understanding of the ecological context of wildlife issues and their resolution will be pivotal to the success of wildlife management initiatives, as they are in any society. But educative efforts should not only encompass modern, scientific understandings of the bear in its habitat, they should also encompass, as much as possible, traditional, local knowledge and models for sharing landscapes with wildlife. By incorporating these traditional aspects, a degree of continuity with the past can be achieved.

11.8 Final conclusions

This thesis has explored the nature of the contemporary human-bear relationship in Japan, dominated by human-bear conflict, or the so-called ‘bear problem’. In order to better understand the contemporary response to the bear, the thesis examined historical perceptions of both the bear and its habitat, and it was found that there has been a clear upland/lowland distinction in this respect. However, it is mainstream culture and perceptions which have formed the basis of the contemporary approach to wildlife management, an approach which largely ignores the traditional ‘management’ strategies and ecological knowledge of the upland dwellers who historically coexisted with the bear and other wildlife of the mountain forests.

This examination has not only informed an understanding of the current Japanese perceptions of the bear, it has also provided insight into the Japanese perception of the natural environment, a dimension of Japanese culture and society which has attracted much scholarship to date. This thesis has demonstrated that any attempt to generalise about a ‘Japanese view of nature’ is complicated by the fact that there are at least two clearly differentiated ‘geomentalities’ evident among Japanese. The

more dominant, ‘mainstream’ geomentality is characterised by the lowland Japanese admiration for familiar, semi-domesticated nature, or ‘soft’ nature. It is the realm of *satoyama*, rather than the ‘wild nature’ of the *okuyama* which has shaped this mainstream perception of nature. Within this conceptualisation of nature, the *okuyama* is a remote, unknown and wild realm associated with the ‘other world’, in contradistinction to the familiar realm of *satoyama*. By extension, the bear is an elusive and inscrutable inhabitant of this unknown and wild realm of the *okuyama*.

The second geomentality is that of upland dwellers, who both lived in close proximity to the *okuyama* and were reliant on the mountain forests to sustain their largely subsistence lifestyles. Whereas for these people the *okuyama* was a geographical and spiritual realm demanding reverence and respect, it was not the object of fear or foreboding that it was for the lowland dweller. Rather, it was a realm pivotal to their material and spiritual lives, and as the largest and most powerful creature of the forest, the bear was a creature respected and valued as the source of both material resources and spiritual inspiration.

It is human-bear conflict which has propelled the bear from its place of relative cultural and physical obscurity into the forefront of attention of mainstream society. As this thesis has demonstrated, the ‘bear problem’ has forced the Japanese to confront an increasingly unavoidable reality: whatever may be said of the Japanese relationship with nature in the past, it can no longer be said to be one of *kyōzon*, or coexistence, now. The discourse concerning wildlife conflict indicates that few people would make this claim. At the same time, there is little to suggest in either the literature or the public and media discourse on human-bear conflict surveyed in the present study that the Japanese are seriously willing to allow the bear to follow the same path as the similarly enigmatic wolf before it. The Japanese are still in the throes of grappling for a long-term resolution to the problem, and the level of commitment required on social, political and economic levels is still not apparent. However, this examination of the discourse and literature concerning the issue suggests that the Japanese have at least initiated the process of finding and implementing solutions to this and other wildlife-conflict issues which seriously threaten both the ecological and social order in Japan today.

What is required in order to secure the future of sustainable populations of the bear in the wild in Japan? In simple terms, its future in the wild is dependent on the preservation (and regeneration) of forest habitat, and the re-definition of clear and separate human and wildlife spheres, or *hitozato*, *satoyama* and *okuyama*. This has two dimensions: bears must be reconditioned to fear and avoid human territories, while humans must learn to respect (as they did in the past) the *yama*, and take proper precautions when entering it in order to avoid conflict. If the Japanese are able to re-define the balance between human needs and the needs of bears, the ‘umbrella species’ of the Japanese forest, they will have achieved something as yet unprecedented worldwide: the coexistence of a densely

populated and economically advanced society with a potentially dangerous species. The ongoing efforts of Japanese society to manage bears is therefore a case-study with implications of great magnitude for human-wildlife relations worldwide.

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[1] Knight, 2003: 174.
[2] See, for example, NHK, June, 2005.
[3] *Iwate Nippō*, March 8, 1993.
[4] The East, 1994; Kondo, 1996.
[5] For example, this is the stated aim（*dōbutsutachi to kyōzon wo kangaeru*）of the Japan Bear-Forest Association (日本熊森協会): see Mainichi Shinbun, February 23, 2005. In March 2005, the question of 'how should humans coexist with bears?' was an essay question for the entrance exam for national universities (Mainichi Shinbun, March 13, 2005).
[6] Taguchi Hiromi 田口洋美, personal communication, May 26, 2005 (Yamaguchi City, Yamaguchi); Sakamoto Yoshihiro, personal communication, May 30, 2005 (Morioka, Iwate); Fujimura Masaki, personal communication, May 26, 2005 (Morioka, Iwate).
[7] Balmford & Whitten (2003), as cited in Woodroffe, Thirgood, & Rabinowitz, 2005: 405.

Glossary

Ainu Refers to the ethnic group indigenous to Hokkaidō and adjacent islands and their language. During much of the Edo period (1615–1868) Ainu people also lived in the northern part of Honshū, in the southern Kuril Islands, along the lower reaches of the Amur River, and in southern Kamchatka. It is generally assumed that the Ainu are descendants of the people referred to as the *Emishi* or *Ezo* (*Yezo*) in ancient Japanese documents, but exact ancestral identification remains unknown.[1]

Aversive conditioning A form of treatment originally employed in the field of psychology to correct an undesirable human behaviour, aversive conditioning is now applied to wildlife management. In the case of bears, it is used to change behaviours in individuals which have become habituated to people, and/or human food-conditioned. Aversive conditioning involves instilling in the bear an association between 'undesirable' activities (such as entering a campground or remaining in the open when people are nearby) with negative human-caused events. Such 'negative events' include subjecting the bear to such stimuli as: being hit with rubber bullets; being sprayed with pepper spray; fireworks or other loud noises; or being chased by specially trained dogs. Aversive conditioning is time-consuming and expensive, and requires the presence of trained staff. It is a method widely used in North America, especially in national parks and reserves, when human-bear conflict occurs in areas of high human activity such as campsites, but is rarely used in Japan.

Bear problem (*kuma mondai* クマ問題) The term 'bear problem' is used in this thesis (usually in inverted commas) as a direct translation of the Japanese term. This term *kuma mondai* is most frequently used to describe human-bear conflict situations—whether they be ones of pestilence, appearances, or human-bear encounters causing injuries—in the media and in general discourse on the issue. More neutral terminology, such as the equivalent of 'human-bear conflict', the term most commonly used in public documents and academic and scientific literature on bear management in North America, is not commonly used. The term *kuma mondai* is symbolic in that it demonstrates a stronger consciousness of the idea that the human-bear conflict is predominantly caused by the bear itself, despite increasing knowledge and awareness that its causes are almost entirely human.

Bear as barometer See entry for 'Umbrella species'.

Geomentality This term refers to the conceptualisation of the geographical environment. Yoon defines this concept as 'an established and lasting frame of mind regarding the environment'.[2] In this thesis, the term is used primarily in reference to the natural and 'semi-natural' landscape of the *yama* (uplands and mountains).

Human-wildlife conflict (human-bear conflict) Whereas the term 'conflict' implies a condition of reciprocity, the term is generally used to refer to costs borne by humans through human-wildlife encounters, albeit with the underlying recognition that much conflict has come about as a consequence of habitat destruction caused by human actions. In the present thesis therefore, the term will be used to refer to any human-wildlife interaction, either direct (i.e., involving a physical encounter), or indirect (involving a person's property, crops, or livestock etc) which results in a cost to the human party. While this may appear an unbalanced definition, given that there are likely to be countless interactions between humans and wildife which lead to costs solely to wildlife, 'wildlife as victim' type of conflicts will not be encompassed in the definition used in the present work. Instead, human-caused impacts on wildife will be explored under the rubric of such concepts as habitat-destruction. Human-wildlife conflict usually takes the form of pestilence (damage to agricultural and horticultural crops, forestry or livestock), or incidents leading to injuries to humans.

Kaso 過疎 Refers to the depopulation (of rural areas). Often used in conjunction with *mondai* 問題 to mean 'depopulation problem', or *chiiki* 地域 to mean 'depopulated areas'.

Matagi (also known as *yamadachi*) Communities in upland Tōhoku which subsisted by hunting, gathering and fishing as well as some agriculture. Important game animals were the bear and the serow. *Matagi* culture is thought to have developed as a distinct culture from around the mid-sixteenth century.

Municipalities This term is frequently used as a translation for *shichōson* 市町村 (cities, towns and villages), the Japanese term used to refer to local government bodies below the prefectural level. (See Chapter Four for a description of the administrative system in Japan.)

Okuyama 奥山 Literally, 'back (i.e. deep) mountains'. A term with a strong social psychological (rather than simply geographical) dimension which refers to the forested mountains traditionally regarded (by lowland Japanese) as remote, isolated and uncivilised.

Pest Referred to as *yūgai chōjū* 有害鳥獣 or *yūgaijū* 有害獣 (harmful wildlife or animal) in Japanese. Woods (1974) defines a pest as 'an organism which harms Man or his property, or is likely to do so. The harm must be significant, the damage of economic importance'.[3] However, as Putman (1989) points out, 'much time and effort has been devoted in the past to the control of animal populations whose activities, while doubtless of considerable nuisance value were perhaps, if the situation were viewed more objectively, of no real economic significance.'[4] This is certainly an observation pertinent to Japan, where bear pestilence is of considerably lower value to that caused by other animals. However, due to the bear's potential to harm human beings, it is regarded with more fear than other wildlife, which leads

people to exert considerable effort to prevent pestilence. Therefore, the idea of 'pest' (*yūgaijū*) cannot be considered simply in terms of its economic dimensions, but its social-psychological dimensions also.

Pestilence Refers to damage caused by animals, predominantly to agricultural and horticultural crops, forestry, livestock, fisheries and aviaries. In Japanese referred to as *nōringyō higai* (農林業被害, agricultural or forestry damage). (Another category of 'damage' is that to human beings: *jinshin higai* 人身被害, literally, damage to people.)

*Sangaku shinkō*山岳信仰 Mountain worship. A form of folk-religion, most likely of prehistoric origins, which recognises a spiritual presence and supernatural powers in mountains. Elements of mountain worship were later amalgamated with Buddhism and other religious ideas to form *Shugendō* (see below).

Sansai 山菜 Literally meaning 'mountain vegetables', refers to edible plants which grow naturally in the wild and have not been cultivated. Some more well-known examples of *sansai* include *zenmai* (*Osmunda japonica*, a type of fern), *warab*i (a type of bracken (*Pteridium)), udo (Aralia cordata),* and *mitsuba (Cryptotaenia japonica).*

Sanson 山村 A category of village particularly relevant to this research, *sanson* is an official designation given to settlements in hilly areas, both low-lying and elevated.[5]

Sato 里 The realm of human habitation, literally, the village.

Satoyama 里山 Literally meaning 'village mountain', this term more specifically refers to the partially wooded and partially cultivated areas around the village, where villagers traditionally collected firewood, vegetable matter for fertiliser, and uncultivated food items such as edible plants, nuts and mushrooms. *Satoyama* usually consists of secondary growth mixed forest, which regenerated after the natural forest was cut back, and is often characterised by such tree species as such as *akamatsu* (red pine), *nara* and *kunugi* (both types of oak) and *kuri* (chestnut) . As Kawai (1995) notes, there is no clear definition for *satoyama*, and it is difficult to define exactly where it begins and where it ends. However, he cites Shidei (1993) who suggests the definition: 'an area of easy to utilise forest'. According to Kawai, the term *satoyama* is a relatively recently coined expression, and was first employed in the years following the Second World War. He notes that the realm of *satoyama* is particularly important in the lives of people in the Tōhoku region, where the use of *sansai* (see definition, above) is especially prevalent.[6]

Sawa 沢　Like *yama*, *sawa* does not coincide with a specific geographic feature in English. It can refer to one of various things: a (relatively shallow) mountain stream; a valley or dale; or a swamp or marsh.

Shugendō 修験道　A syncretic religion made up of folk-religious, Buddhist and Taoist components, *Shugendō* involves ascetic practices in mountains to attain holy or magic powers beneficial to the community. Its practitioners are called *yamabushi* or *shugenja*. *Shugendō* emerged as a separate religious denomination in the twelfth century.[7]

*Shutsubotsu*出没　Literally meaning 'appearing and disappearing', in the context of the 'bear problem', it refers more specifically to frequent appearances (in human populated areas). Generally used in combination with *ijō* 異常, meaning 'abnormal'.

Tōhoku 東北　Literally meaning north-east (actually east-north), *Tōhoku* refers to the six northernmost prefectures of Honshū, namely, Aomori, Akita, Iwate, Miyagi, Yamagata, and Fukushima.

Umbrella species　Also known as 'icon' or 'keystone species'. The protection of an 'umbrella species' protects a wide range of co-existing species in the same habitat, which may be lesser known and difficult to protect individually. Connected to this concept is the idea of wildlife as barometer of the health of the environment. For example, the Wildlife Management Institute in the United States publishes a booklet entitled *Wildlife—The Environmental Barometer*, illustrating how the condition of wildlife populations 'mirror the quality of the human environment, and it shows the importance of the proper use of our nation's land and water resources.'[8]

Yama 山　The term *yama* literally translates as 'mountains'. However, in Japan, the physical spheres of 'mountains', 'hills' and 'forest' (particularly natural forest) often coincide, and when the term *yama* is used, it generally refers to a physical realm which consists of forest-covered upland or mountainous terrain. Furthermore, the term is not simply limited to its physical meaning, but can also encompass a spiritual or psychological notion of 'the unknown and untamed' realm of nature, in contradistinction to 'villages or other human-inhabited places'. See also *okuyama*.

Yamato 大和　The term 'Yamato' is used in this thesis to refer to the people associated with the Yamato State, which became established in the sixth century in what is now Nara Prefecture. The culture of the Yamato State was strongly influenced by continental culture such as Buddhism, Chinese writing, bureaucratic systems of government and so on, which was introduced by more recent immigrants from the continent (particularly Korea). The culture and ethnicity of these more recent

migrants (often known as ‘Yayoi’) was quite distinct from that of the Jōmon people whose ancestors migrated to Japan using land-bridges before the end of the last glacial period (NHK, 2002).

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[1] Kodansha, 1993: vol. 1, 21.
[2] Yoon (1991), as cited in Yoon, 1992: 8.
[3] As cited in Putman, 1989: 1.
[4] Putman, 1989: 1.
[5] Palmer, 1983: 86.
[6] Kawai, 1995: 17.
[7] Kodansha, 1993, vol. 2, 1423.
[8] Wildlife Management Institute of the United States, 2006.

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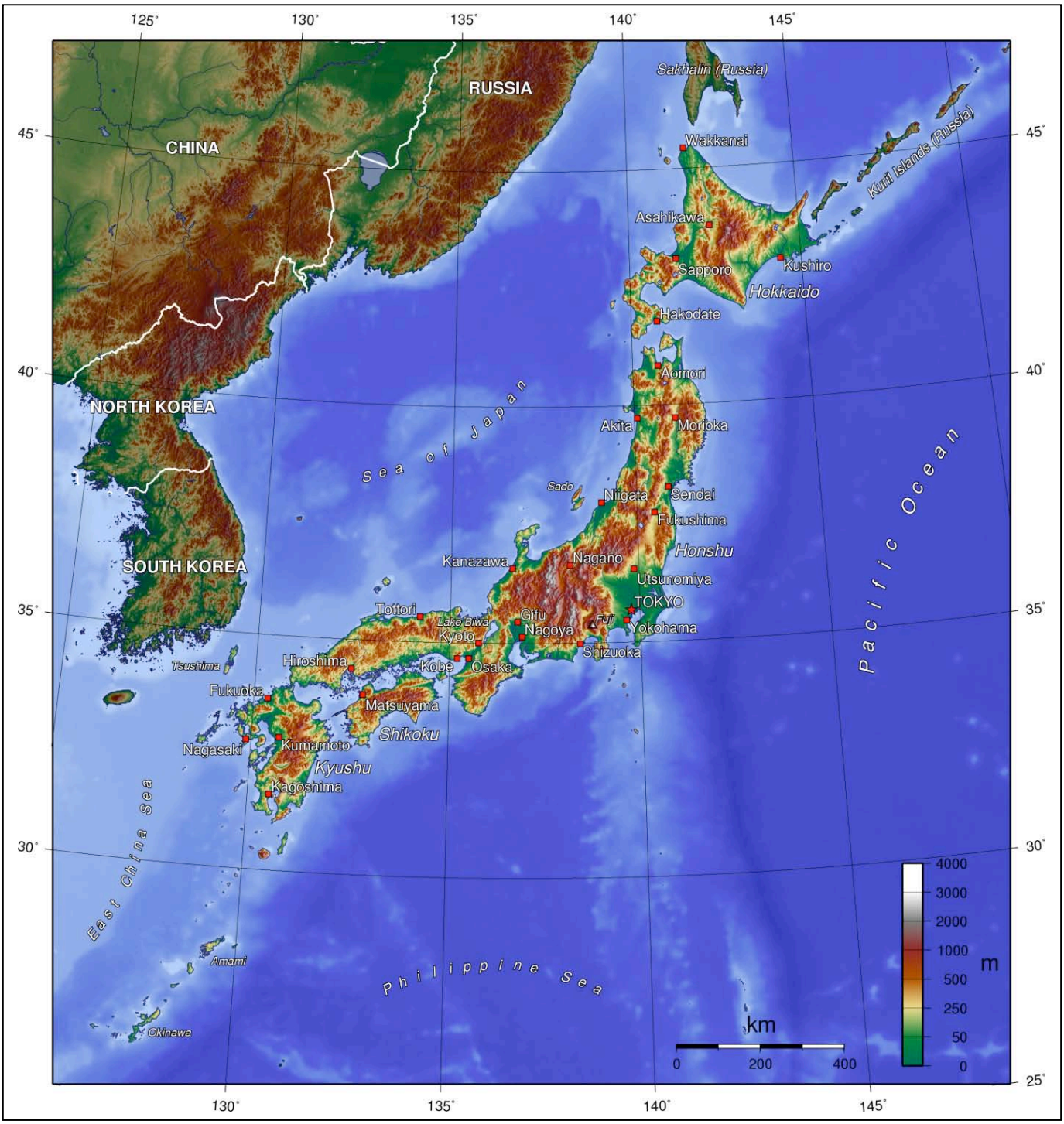
Appendix 1: Topographical map of Japan



Appendix 2: Prefectural map of Japan

(Source: Cambridge Encyclopaedia of Japan)

Appendix 3: Historical periods of Japan

Paleolithic	200,000(?)–10,500 B.C.
Jōmon	10,500–400 B.C.
Incipient	10,500–8000 B.C.
Initial	8000–5000 B.C.
Early	5000–2500 B.C.
Middle	2500–1500 B.C.
Late	1500–1000 B.C.
Final	1000–400 B.C.
Yayoi	400 B.C.–A.D. 250
Kofun	A.D. 250–600
Asuka	A.D. 600–710
Nara	A.D. 710–794
Heian	A.D. 794–1185
Kamakura	A.D. 1185–1333
Muromachi	A.D. 1333–1573
Momoyama	A.D. 1573–1615
Edo	A.D. 1615–1868
Meiji	A.D. 1868–1912
Taishō	A.D. 1912–1926
Shōwa	A.D. 1926–1989
Heisei	A.D. 1989–